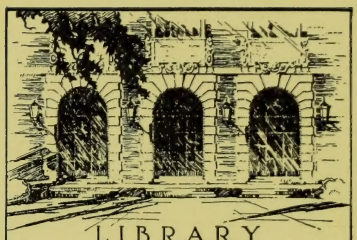

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AGRICULTURAL AND MECHANICAL COLLEGE RECORD

VOL. 12 No. 4

MARCH, 1914

WEST RALEIGH, N. C.

MAR 1915

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REGISTRAR, A. AND M. COLLEGE,
West Raleigh, N. C.

THE

NORTH CAROLINA COLLEGE

OF

AGRICULTURE AND MECHANIC ARTS

WEST RALEIGH

1913-1914

RALEIGH
EDWARDS & BROUGHTON PRINTING CO., STATE PRINTERS AND BINDERS
1914

Calendar

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COLLEGE CALENDAR.

1914.

Thursday,	July	9.	Entrance examination at each county courthouse, 10 a. m.
Wednesday,	September	2.	Entrance examination at the College, 8:30 a. m.
Thursday,	September	3.	First Term begins; Registration Day.
Thursday,	November	26.	Thanksgiving Day.
Saturday,	December	19.	First Term ends.

1915.

Wednesday,	January	6.	Second Term begins; Registration Day.
Sunday,	May	23.	Baccalaureate Sermon.
Monday,	May	24.	Alumni Day. Annual oration.
Tuesday,	May	25.	Commencement Day.

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W. H. RAGAN	High Point	March 20, 1921.
W. B. COOPER	Wilmington	March 20, 1921.
J. P. MCRAE	Laurinburg	March 20, 1921.

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MRS. CHARLES McKIMMON,
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MISS ELIZABETH GORDAN GRIFFIN,
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DAN T. GRAY,
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Marketing.

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[4]H. M. LYNDE,
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The Experiment Station is supported and conducted jointly by the College and the State Department of Agriculture. A joint committee from the Board of Trustees of the College and the Board of Agriculture, under agreement entered into by the boards and authorized by an act of the Legislature in 1913, has direct charge of the work of the Station.

---

1 In coöperation with the United States Department of Agriculture, Bureau of Plant Industry.
2 In coöperation with the United States Department of Agriculture, Bureau of Soils.
3 In coöperation with the United States Department of Agriculture, Bureau of Animal Industry.
4 In coöperation with the United States Department of Agriculture, Office of Experiment Stations.

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E. H. WEATHERSPOON, Captain and Commissary.

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GENERAL INFORMATION.

During the years in which North Carolina was emerging from the economic havoc wrought by Civil War and Reconstruction, some farsighted men began to see the necessity of rearing industrially equipped men. They felt keenly the need of competent men to build and direct new industries, and to restore the land which had been impoverished partly by slave labor. They recognized that men capable of doing what was needed would have to be educated in industrial schools and technical colleges.

The first organized body to take steps for the establishment of a State industrial institution in North Carolina was the Watauga Club. This club, composed of bright young men, explained its mission by declaring that it was "an association in the city of Raleigh designed to find out and make known information on practical subjects that will be of public use." In 1885 this club presented to the Legislature a memorial urging that body "to establish an industrial school in North Carolina which shall be a training place for young men who wish to acquire skill in the wealth-producing arts and sciences."

This memorial quickened general interest in the proposed school, and several bills looking to its foundation were introduced in the Legislature of 1885. On March 7th, one of these bills, introduced by Hon. Augustus Leazar, of Iredell County, became a law. This law provided that the Board of Agriculture should seek proposals from the cities and towns of the State, and that the school should be placed in the town offering the most inducements. The Board of Agriculture finally accepted an offer from the city of Raleigh.

Meantime, the ideas of the advocates of the school had been somewhat broadened as to the character of the proposed institution.

These men saw that Congress was about to supplement the original land grant by an additional appropriation for agricultural and mechanical colleges in each State. The originators of the conception then sought the aid of progressive farmers in order to change the school into an Agricultural and Mechanical College. Col. L. L. Polk, the editor of the newly-established Progressive Farmer, threw the weight of his paper heartily into the idea. Meetings were held in various places, and two very large meetings in Raleigh considered the proposition. As a result, the school already provided for was by action of the Legislature of 1887

changed into an Agricultural and Mechanical College, and the Congressional Land Scrip Fund was given the newly formed institution. In addition, the law directed that any surplus from the Department of Agriculture should go into the treasury of the college. Mr. R. Stanhope Pullen, one of Raleigh's most broad-minded citizens, gave the institution eighty-three acres of land in a beautiful suburb of Raleigh. Additional funds were afterwards provided by the Supplemental Morrill Bill passed by Congress in 1890, by the Nelson Bill of 1907, and by State appropriations. The first building was completed in 1889, and the doors of the College were opened for students in October, 1889. Seventy-two students, representing thirty-seven counties, were enrolled the first year. The faculty consisted of six full professors and two assistants. From this small beginning in 1889, the College has grown steadily from year to year.

The College is beautifully located on the extension of Hillsboro Street in the western suburbs of Raleigh, a mile and a quarter from the State Capitol. The site is suitable in all respects.

There is an abundant supply of water from the city mains and from twelve deep wells on the College grounds. The water is analyzed, both chemically and bacteriologically, at regular periods.

The College now owns four hundred and eighty-six acres of land. Fifteen hundred young trees and nine hundred and forty vines are growing in an orchard of twenty-five acres. Seven acres are devoted to truck growing. The campus consists of about thirty acres of rolling land, which is being improved as rapidly as circumstances permit.

BUILDINGS.

The buildings, numbering twenty-seven in all, are grouped as follows: the academic buildings; the social life buildings; and the farm buildings.

I. The academic buildings are as follows:

1. Holladay Hall.—This, the administration building of the College, is of brick with brown stone trimmings. It is 170 feet long by 64 feet deep; part of the building is four stories and the remainder two. The first floor is devoted to the lecture-rooms and laboratories of the Physics Department. The second floor contains the offices of the President, the Dean of the Faculty, the Commandant, Registrar, and the Bursar. In addition, six lecture-rooms are located on this floor. The upper stories are used by students.

2. Patterson Hall.—This is the largest of the Agricultural buildings. It is a three-story buff press-brick structure, with granite

trimmings, and is 204 feet long by 74 deep. The basement floor contains a very commodious dairy with wash-rooms and sterilization chamber. It also contains mailing rooms for bulletins. The second floor provides room for the offices of the Experiment Station, for offices, lecture-rooms, and laboratories for the departments of Agronomy, Horticulture, Soils, and Agricultural Extension. On the third floor are the rooms devoted to the offices, lecture-rooms, and laboratories of the departments of Botany and Plant Pathology, and of Physiology and Veterinary Medicine. This building contains excellently equipped laboratories, and is well lighted and ventilated. Each section of the building was designed for its specific function, and hence admirably meets the requirements of these departments.

3. Animal Husbandry Building.—This new building is a three-story brick structure, and has white brick and cement trimmings. One-half of the first floor is given to the Poultry Department. The other half is devoted to a stock-judging room. The offices, lecture-rooms, and laboratories of the Animal Husbandry Department take up all the second floor. The third floor is assigned to the Department of Entomology and Zoology. In addition to offices and laboratories, this floor contains a photographic room and a museum.

4. Winston Hall.—This is the Civil and Electrical Engineering building. It is built of brick, with reinforced concrete floors, three stories high, including the basement. It consists of a main section, 104 by 58 feet, with two wings, each 91 by 32 feet. The basement contains the laboratories and instrument rooms of the departments of Electrical and Civil Engineering. The main floor has the lecture, recitation, and drafting rooms, and the offices of the same two departments. The second floor contains the lecture and recitation rooms and the laboratories and offices of the Department of Chemistry and the Chemical Department of the State Experiment Station.

5. Mechanical Engineering Building.—A plain substantial two-story brick building furnishes room for the drawing rooms, recitation rooms and offices of a portion of the force in the Mechanical Engineering Department.

6. Textile Building.—This is a two-story brick building, 125 by 75 feet, with a basement. Its construction is similar to that of a cotton mill, and is an illustration of standard construction in this class of buildings. The basement contains the dyeing department, the first floor the looms and warp preparation machinery, and the second floor the carding and spinning machinery.

7. Primrose Hall.—Built originally for the Horticultural Department, this building, one-story and a basement, is now used for classrooms.

8. Central Power Plant.—Heat, light, and power for all the College buildings are furnished from this central station. The boiler plant consists of two 75-horse-power Babcock and Wilcox boilers and two 100-horse-power Atlas Water-tube boilers, with a working steam pressure of 150 pounds. The engine plant embraces a 100-horse-power Skinner engine and a Crocker-Wheeler generator attached; a 100 k. w. DeLaval turbine generator set with exciter; and steam and vacuum pumps for feeding the boilers and maintaining circulation in steam-heating apparatus. The buildings are equipped with Warren-Webster system of heating.

9. Foundry.—Until the new shop building is completed, the foundry is located in the rear section of Pullen Hall. The equipment consists of a 36-inch cupola furnace, a Griffin oil furnace for melting iron; another for brass, and a small crucible furnace for brass melting; a core oven, and benches and hand tools for moulding in the course of exercises, as well as for any repair work required by the College.

10. Shop and Laboratory Building.—All of the shop work, which includes practice in wood working, forging, machine shop and foundry, is given in the new shop building. The Mechanical Engineering laboratory is also in this building. It is one-story and part basement structure of brick, with steel roof trusses and asbestos shingle roof. Steel sash are used throughout, and an unusual amount of light is provided. Part of the basement will be used for a portion of the Mechanical Engineering laboratory and a part for storage of materials of various kinds. The main floor consists of a machine shop 47 by 100 feet, a laboratory room 45 by 100 feet, a wood shop, 50 by 120 feet, a foundry, 35 by 75, and a forge shop, 35 by 75 feet. Provision is also made for demonstration rooms, offices and tool rooms. A wide entrance hall provides space for the exhibition of work done by students and exhibitions showing the different processes in the manufacture of many well known articles. The building is L-shaped, one dimension being 170 feet and the other 195 feet.

The Fire Protection of the College consists of the following equipment: A standpipe and reservoir, hose and hose reels. Hydrants are conveniently located about the grounds, with attached hose nozzles, etc. The buildings are supplied with chemical extinguishers.

II. The social life buildings are as follows:

1. Pullen Hall.—The basement of this large three-story colonial brick building is used as an armory. The first floor gives quarters for a splendidly-lighted reading-room and library and two lecture-rooms. The second story serves as the College auditorium, and seats about one thousand people.

2. Dining Hall.—This building, which will seat seven hundred and fifty students, is 144 by 54 feet. It is trimmed with Indiana limestone and white brick. Attached to this dining hall is a large kitchen, which is supplied with a complete modern outfit of kitchen conveniences and utensils. Serving rooms, storerooms, preparation rooms, and every needful adjunct have been provided.

3. The Y. M. C. A. Building.—The Young Men's Christian Association Building, which was opened January 31, 1913, is a three-story red brick building with Indiana limestone trimming. This building is the home of all the voluntary student activities, and is under the supervision of the Young Men's Christian Association. The basement floor contains a small gymnasium, bowling alleys, a locker-room, shower baths, toilets, and athletic rooms. The main floor contains a large lobby, a reading-room well equipped with daily papers and magazines, a game room, an auditorium, a banquet hall with pantry and kitchen attached, a committee room, a library, a kodak dark-room, four bedrooms for visitors, offices for the College weekly, monthly and annual publications and offices for the Association. The third floor contains two large literary society halls, a cabinet room, a Bible study, and a Mission study room. The building is handsomely equipped with mission furniture throughout.

4. Infirmary.—The College hospital is a two-story brick building, to which two wards have just been added. In addition to these wards there are four separate rooms, three bathrooms, an office for the College physician, and rooms for the head nurse, and a kitchen. The rooms are well ventilated, carefully lighted, and heated by steam. The furniture and equipment are modern and sanitary.

5. Watauga Dormitory.—Rooms for one hundred and twenty students are provided by this three-story brick dormitory. A large bathroom is located in the basement of this building.

6. Nineteen-Eleven Dormitory.—This is the largest and most complete dormitory on the grounds. It is divided into sections by fireproof walls, and each section is practically a separate house. It furnishes rooms for two hundred and forty students. Large and convenient bathrooms are located in the basement of the building.

7. First Dormitory.—This two-story brick dormitory has ten rooms and affords accommodations for twenty students.

8. Second Dormitory.—Built on the same plan as the First Dormitory, this building affords a college home for twenty students.

9. Third Dormitory.—Twenty students also find rooms in this small dormitory.

10. Fourth Dormitory.—This is a three-story, mansard-roofed brick structure, and furnishes rooms for forty-eight students.

Temporary Wooden Dormitories for Some Students.—In the summer of 1913, the College found itself confronted by a serious dilemma. All the rooms in its permanent dormitories were engaged. No appropriation for building a new dormitory was available. Many deserving young men who wanted to fit themselves to do an educated man's work in the industrial world were asking for admittance. Rather than close its doors to these young men whom the State is needing for its material development, the trustees of the College decided to build some cheap wooden dormitories for such earnest young men as were willing to live in them rather than miss their opportunity for a technical education. These buildings are furnished just as the other dormitories are, and are lighted by electricity. While unsightly, they are sanitary and comfortable.

The College will have to use these buildings again this coming year to accommodate its growing numbers. It is hoped that the next Legislature will make provision for permanent dormitories.

III. The farm buildings constitute the third group of College buildings. These are as follows:

1. A large sanitary dairy barn with stalls and feed-rooms for fifty cows. This barn is abundantly aired and lighted, is equipped with James sanitary fixtures, and has cement floors.

2. A barn for the work stock. Stalls for most of the work animals and some overhead storage are supplied by this barn.

3. A storage barn. This barn gives storage for feedstuffs for the dairy, and is also equipped with stalls for the Percheron horses.

4. A fertilizer and implement barn. A commodious barn, which provides room for instruction in mixing fertilizers and storage for the farm implements and machines.

5. The Experiment Station barn. This convenient building is located on the College farm and houses the work stock of the Station.

6. A calf barn. The young stock of the College are provided with

separate stalls and feeding rooms in a comfortable building on the farm site.

7. The foreman's home. A cottage near the barns is occupied by the foreman of the College farm and by the herdsmen.

8. The Horticulturist's home. In order that he may be near his work, the Horticulturist is provided with a home in the center of the orchard.

9. The Poultry Plant, consisting of the home of the instructor in charge, incubator, and brooding house, and pens for all the fowls, is situated just opposite the Horticultural farm, on Hillsboro Road.

THE AGRICULTURAL EXPERIMENT STATION.

The North Carolina Agricultural Experiment Station was established originally as a division of the State Department of Agriculture, in accordance with an act of the General Assembly, ratified March 12, 1877. Its work was greatly promoted by act of Congress of March 2, 1887, known as the Hatch Act, which made a donation to each State for the purpose of investigations in agriculture, and for publishing the same. The funds of the Experiment Station were further supplemented by the act of Congress of March 16, 1906, known as the Adams Act. Under the requirements of the Hatch Act, the Station became a department of the College and was conducted jointly by the College and the Department of Agriculture from 1887 to 1907, with the exception of three years. Under an agreement entered into between the Board of Trustees of the College and the Board of Agriculture in January, 1912, and authorized by act of the Legislature of 1913, the work of the Experiment Station, which covers all of the experimental work in agriculture in the State, is jointly conducted and supported by the College and State Department of Agriculture.

The experimental work in the field in agriculture, horticulture, stock and poultry raising, dairying, etc., is conducted on the College farm and on the test farms of the Department of Agriculture in different parts of the State, and the laboratory investigations are conducted in the laboratories in the two institutions.

The Station is always glad to welcome visitors and to show them the work in progress. The Station conducts a large correspondence with farmers and others concerning agricultural matters. It takes pleasure in receiving and answering questions.

Bulletins relating to general farm matters, embodying the results of the experiments, are sent free to all citizens of the State who request them. A request addressed to Agricultural Experi-

ment Station, West Raleigh, will bring these publications in answer to letters.

THE PURPOSE OF THE COLLEGE.

The College is an institution where young men of character, energy, and ambition may fit themselves for useful and honorable work in many lines of industry in which training and skill are requisite to success. It is intended to train farmers, mechanics, engineers, architects, draughtsmen, machinists, electricians, miners, metallurgists, chemists, dyers, mill workers, manufacturers, stock raisers, fruit growers, truckers, and dairymen, by giving them not only a liberal, but also a special education, with such manual and technical training as will qualify them for their future work.

It offers practical and technical education in Agriculture, Horticulture, Animal Industry, Civil Engineering, Mechanical Engineering, Electrical Engineering, Mining Engineering, Chemistry, Dyeing, Textile Industry, and Agriculture. It also offers practical training in Carpentry, Woodturning, Blacksmithing, Machinist's work, Mill work, Boiler tending, Engine tending, Dynamo tending and Installation, Electric-light Wiring, Armature Winding, and other subjects relating to practical electricity.

Although the leading purpose of the College is to furnish technical and practical instruction, yet other subjects essential to a liberal education are not omitted. Thorough instruction is given in English, Mathematics, Political Economy, Physics, Chemistry, Botany, Zoology, Physiology, and Geology.

The College is not a place for young men who desire merely a general education without manual or technical training, nor for lads lacking in physical development, mental capacity, or moral fiber, nor for those who are unable or unwilling to observe regularity, system, and order in their daily work.

WHAT THE COLLEGE EXPECTS OF ITS STUDENTS.

The College does not have many rules. It expects that its students will live rightly for their own sakes and for the sake of the State that is educating them. The fundamental law of the College is this: Always and everywhere, be a gentleman.

A record is kept of every student. If it is apparent from this record that a student is not studying or that his conduct is not meeting the requirements of the College, such student will be required to withdraw. Scandalous, vicious, or immoral conduct will necessitate an immediate dismissal.

Students attend this College, of course, to fit themselves for a technical business life. They are therefore expected to be business-like in their habits; to be prompt in their attendance and regular at chapel, classes, shops, drills, inspections, and all other duties. To prepare themselves for their daily work, students are expected to observe in their own rooms the regular morning and evening hours of study, and to be absent from College only at the regularly specified periods. These periods are as follows: For Juniors, Friday, Saturday, and Sunday nights; for Sophomores, Saturday and Sunday nights; for Freshmen, Sunday nights. Saturday and Sunday afternoons are liberty afternoons.

Students are expected to keep their rooms neat and sanitary; to refrain from disturbing one another by noise in the buildings or on the grounds—in short, to conduct themselves in their College home with the same courtesy, self-respect, and propriety that they do in their own homes.

Visiting poolrooms, leaving College after 11 o'clock at night, continued cigarette smoking, wilful destruction of College property, drinking, immorality, gambling in all forms, hazing of any kind, disrespect to members of the Faculty or officers of the College, any conduct unbecoming a gentleman—these offenses it is expected that a student's self-respect will lead him to abstain from, and should any student be found guilty of them he will be excluded from College.

REPORTS AND SCHOLARSHIP.

Regular reports of scholarship and conduct are sent to parents and guardians at the end of each term. Special reports are made whenever necessary. Students who are persistently neglectful of duty, or manifestly unable to do the work required, will be discharged at any time. The Faculty will require any student to withdraw whenever it is plain that his stay in the institution is not profitable to himself nor to the College.

PRIZES.

The North Carolina State Fair Association offers a prize of $5 to the student preparing the best essay on the Live-stock Exhibit at the State Fair.

A gold medal is awarded to the Senior speaker who makes the best oration on Commencement Day.

The National Association of Cotton Manufacturers offers annually a medal to the student in the Textile Department who has the highest proficiency in his work.

RELIGIOUS INFLUENCES.

All students are required to attend chapel exercises in Pullen Auditorium each morning. These services are conducted by the President, by some member of the Faculty, or by some visiting minister or layman.

Each student is expected to attend religious service in Raleigh on Sunday morning at the church of his choice. The students are always welcomed in the Sabbath schools of Raleigh, and a large number of them attend these services.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

The Young Men's Christian Association is a voluntary organization among the students for the purpose of centralizing and directing the moral and religious life of the student body. The work is under the direction of a General Secretary, who is employed to give his entire time to the work, and of the following student officers: President, vice president, corresponding and recording secretaries, and treasurer. Active assistance is also given by an Advisory Committee, which includes three members of the Faculty and six prominent business men in Raleigh. The president and treasurer of the Association are *ex officio* members of this committee.

Membership is open to all College students of good moral character. Only members of evangelical churches may become active members.

A hand-book, giving general information about the College, is published each spring and sent to prospective students, with a personal letter of welcome from the officers of the Association.

A large number of men are trained each year in active Christian service through membership on the following standing committees, all of which are trained by the General Secretary in their particular work: Bible Study Committee, which has charge of the organization of voluntary Bible Study classes among the students, and in this way seeks to reach all of the non-Christian element of the student body; Religious Meetings Committee, which provides speakers and arranges programs for the weekly meetings of the Association; Mission Study Committee, which provides for Mission Study among the students; Membership Committee, which seeks to enlist students as members of the Young Men's Christian Association; Social Committee, which provides means of social entertainment and diversion; and Finance Committee. Each committee is held responsible for its part of the Association activities.

The Association is supported by gifts from the Board of Trustees, the Faculty, and citizens of the State, and by its regular membership fees. Although membership is voluntary, it is desired that all students should apply for membership, and thereby align themselves with an organization which will assist them in leading an upright life while in college.

The Association occupies its own building on the campus, which was erected at a cost of $41,000.

Parents or students wishing to obtain further information about the work of the Association, may do so by addressing the General Secretary, West Raleigh, N. C.

ATHLETICS.

The Athletic Association is organized by the student body to promote physical health and manly spirit through athletic sports. Under the direction of the Athletic Committee of the Faculty, it promotes practice in baseball, basketball, football, track athletics, etc. The Association employs a director who devotes all his time to the interests of this department.

The Athletic Park is situated in the center of the College buildings. It is provided with a grandstand and uncovered seats, and meets the needs of the various athletic teams.

LIBRARY AND READING-ROOMS.

The College Library occupies the first story of Pullen Hall. The reading-room is supplied regularly with about one hundred and fifty magazines and journals of various kinds, and yearly additions are being made to this number. The library contains about seven thousand five hundred volumes. There are also reference libraries in the different departments. The library is kept open from 9 a. m. to 6 p. m. The Librarian is always present to assist students in finding desired information.

The Olivia Raney Library in Raleigh, containing now about twelve thousand four hundred volumes, is free to students, and they have the privilege of borrowing books from it.

Students are also allowed to consult books in the **State Library.**

STATE MUSEUM.

Students have free access to the large collections of the State Museum. These collections furnish most excellent opportunities for studies in Geology, Mineralogy, Mining, Forestry, and Natural History.

COLLEGE SOCIETIES.

Such college organizations are encouraged as tend to form good character, to develop manly physical vigor, and to promote literary, scientific, and technical research and training.

The Biag Society is composed of those students who have made the best record in biological and agricultural subjects. The membership is limited to twelve. The society meets monthly for the discussion of biological and agricultural questions.

Farmers' Progressive Association.—The students in the Winter Course in Agriculture meet every Wednesday night during the winter term for a discussion of practical problems. The meetings are conducted in the manner of a Farmers' Institute, and give training in conducting farmers' meetings, in *ex tempore* speaking on agricultural questions, and in the writing and reading of reports on various farm operations.

The Rural Science Club meets semimonthly for the discussion of agricultural subjects, review of current agricultural publications, and reports on personal experiments and the work of the College farm and Experiment Station.

The Biological Club meets semimonthly for the discussion of biological subjects in their relation to practical agriculture. Students here present results of their own investigations and observations and reviews of the more important current publications, particularly those from the United States Department of Agriculture and the State Experiment Stations.

The Tompkins Textile Society.—The purpose of this society is to discuss textile problems and other subjects in connection with the textile industry. Meetings are held fortnightly, and great interest is taken in them by the textile students.

The Mechanical Engineering Society meets every week for the discussion of engineering subjects. The society is composed of Seniors and Juniors taking the Mechanical Engineering Course. Its work has proved very beneficial to its members.

Electrical Engineering Society.—A student branch of the American Institute of Electrical Engineers was organized at the College several years ago. It holds weekly meetings for the reading and discussion of papers. At convenient intervals the society makes trips for inspecting interesting electrical installations. From time to time addresses are made by visiting engineers.

Berzelius Society meets fortnightly for discussion of chemical topics, and reporting upon the leading articles in the chemical journals.

The Vorwaerts Verein (Forward Society) is a society for the promotion of interest in the study of German. Weekly meetings are held, at which literary programs are carried out in German, giving its members practice in expressing themselves in that language. Membership is open to students and members of the Faculty who have acquired sufficient knowledge to understand simple conversation in German.

The Pullen and Leazar Literary Societies afford excellent opportunities for practice in declamation, debate, composition, and parliamentary law, as well as opportunities for social pleasure and recreation.

The Alumni Association meets each year on the Monday preceding Commencement Day, transacts its annual business, hears the Alumni oration, and attends the annual Alumni banquet. This association purposes raising funds to erect an Alumni building at the College.

REQUISITES FOR ADMISSION.

Each applicant for admission must be at least sixteen years of age and must bring a certificate of good moral character from the school last attended.

To the Four-year Courses.

Admission to the Freshman Class of all four-year courses is by the unit system. A unit is defined as a subject pursued in schools of approved grade for five periods a week throughout the year, each period being at least forty-five minutes in length. Each applicant, selecting from the subjects named in the lists below, must, on examination, make eight units, the credit on any one subject not to exceed the value indicated. Of these eight units the following are required for all four-year courses:

Required Units.

SUBJECT.	UNITS.
Algebra	1½
English	2
United States History	1
Total units in required subjects	4½
Geometry (Engineering Courses and Chemistry)	½

The 1½ units required in Algebra must cover the subject to quadratic equations.

Of the 2 units required in English, 1 unit must be in grammar and composition and 1 unit in literature.

A full unit will be allowed for any one science only when the subject has been given with laboratory practice.

Additional Units.

In addition to the four and one-half units in required subjects given in above list, applicants wishing to take the Agricultural Course, the Veterinary Course, or the Textile Course must offer three and a half units selected from the list below. Applicants wishing to enter an Engineering course or the Chemical course must offer, in addition to the above required units, ½ unit in geometry and three units selected from the list below. The ½ unit in geometry must include the first three books of Plane Geometry:

Elective Units.

SUBJECT.	UNITS.
Agriculture or Farm Practice	1
Botany	½ or 1
Bookkeeping	½
Chemistry	½ or 1
Civics	½
Drawing (Freehand or Mechanical)	½
English History	1
French, German or Spanish	1
Latin	2
Manual Training	½
Mill Practice	½
Physics	½ or 1
Physiology	½
Zoology	½ or 1

Admission on Certificate.—Applicants for admission to the Freshman Class, who present certified statements from principals of high schools or academies of approved standing that the applicant has satisfactorily completed the eight units required by the College,

will be admitted without further examination. These certificates must be submitted to the Dean of the College for approval.

To the Two-year Courses.—Applicants for admission to the two-year courses in Agriculture, Mechanic Arts, and Textile Industry will be examined on Arithmetic complete, English Grammar and Composition, and American History.

To the One-year Course in Agriculture.—Applicants for admission to the One-year Course in Agriculture will be required to pass on Arithmetic through decimal fractions, on English Grammar and on United States History.

To the Winter Courses.—No entrance examination is required of candidates for admission to the winter courses. No one under eighteen years of age will be admitted to a winter course.

ENTRANCE EXAMINATIONS AT COUNTY SEAT AND AT COLLEGE.

Entrance examinations will be held by the County Superintendents of Instruction in each courthouse in the State at 10 o'clock a. m. the second Thursday in July of each year. The date for 1914 is July 9. These examinations will save the expense of a trip to Raleigh in case the candidate should fail or in case there should not be room enough for him in the College. Entrance examinations will be held also at the College at 8:30 o'clock a. m. on the Wednesday preceding the opening day. The examinations begin with English at 8:30 a. m., in Room 18, Holladay Hall, followed by Mathematics at 10, and History at 2, in the same room. The date for 1914 is September 2.

ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

1. Applicants for admission to winter courses, if over eighteen years of age.
2. School teachers, holding teachers' certificates, if the holders are sufficiently familiar with Algebra and Geometry.
3. Graduates of those high schools and academies whose certificates are accepted by the Faculty of this College.

ADVANCED CREDIT.

Students who have attended colleges of approved standing will be allowed credit for work done upon the presentation of proper certificates to the Dean, who, with the heads of the departments concerned, will determine their value.

SESSION.

The College session lasts nine months, and opens annually the first Thursday in September and closes the last Tuesday in May, with a vacation of about two weeks at Christmas.

EXPENSE.

The total average college expense of a Freshman student is $235.

The total average college expense of a Freshman student having a scholarship is $190.

These amounts include cost of board, tuition, lodging, fuel and lights, fees and deposits, books, uniform and cap, drawing instruments. They do not include allowance for clothing, other than for uniform and cap, nor for spending money and contingencies.

Allowance for clothing, spending money, and contingencies should be kept within reasonable bounds. The allowances which parents make their sons for contingencies and spending money, it is suggested, should be kept small; for small allowances frequently take away temptation to unwise living.

DETAILED INFORMATION.

The largest payment is made in September. On entrance, a Freshman student will need $85 to meet all of his various payments for the first month. But of this amount a payment of $22.50 for tuition may be deferred, if desired, to the first of November. This will reduce the first, or entrance, payment to $62.50. This amount includes payment to the College of $45 (this may vary one or two dollars according to the course of instruction); deposit with the dealer for uniform and cap of $5, and $12.50 for the purchase of books and incidentals. In the case of day students, or students rooming and boarding out of College, tuition will be paid on entrance.

Board is $11 per month, payable in advance on the first day of each calendar month from September through to May. Board for less time than one month is charged for at the rate of 40 cents a day. Refunds for board will be made on the basis of these charges.

Students withdrawing from College within two weeks from date of entrance will be refunded all money paid by them to the College Bursar except charges for board and lodging during the time they are in College. In special cases the right is reserved to modify or entirely revoke this rule.

Refunds to students withdrawing later than two weeks from date

of entrance will be made in proportion to the length of time they are in college. The right in special cases to modify or to revoke this rule is reserved.

EXPENSE BY MONTHS.

The following is a statement of the College expenses of a Freshman student by months, for Civil, Electrical, and Mechanical Engineering divisions:

SEPTEMBER: Room rent, fuel and lights, $15; incidental fee, $2; medical and hospital fee, $3; lecture fee, $1; library fee, $1; furniture fee, $1; physical culture fee, $3; military equipment deposit, $5; mechanical and physical laboratory fees, $3; board for September, $11; a total of $45 to be paid to the College. Tuition for one-half session, $22.50, may be paid at this time, which will make a total of $67.50 to be paid to the College. In addition, there is required by the merchant a deposit of $5 for uniform and cap when the measure of the student is taken; and about $10 to $15 is required to buy books and drawing instruments, and for incidentals.

An Agricultural Freshman pays $1.50 more than the above. A Textile Freshman pays $1 less than the above. Chemical Freshmen pay $1 more than the above.

OCTOBER: Board, $11, and balance to merchant for uniform and cap, $15.

NOVEMBER: Board, $11; tuition, if it was not paid in September, $22.50.

DECEMBER: Board, $11.

JANUARY: Tuition, $22.50; lodging and fuel and lights, $15; medical and hospital fee, $3; furniture fee, $1; physical culture fee, $3; board $11. A total of $55.50.

FEBRUARY: Board, $11.

MARCH: Board, $11.

APRIL: Board, $11.

MAY: Board, $11.

The amount of the September or entrance payment for students varies slightly with the class, the course, and the division. This variation is caused by the additional collection of fees and deposits for laboratory work and for supplies, The amount of these fees and deposits is given in the table below, for all classes and courses.

COURSES.	Long Courses.				Short Courses.		
	Seniors.	Juniors.	Sophomores.	Freshmen.	Two-year—Second.	Two-year—First.	One-year.
Students in Agriculture—							
Agronomy Division	$ 3.00	$11.00	$ 9.00	$ 4.00	$6.00	$1.00	$ 6.50
Animal Husbandry Division	2.50	11.00	9.00	4.00	------	------	------
Horticulture Division	3.00	10.00	9.00	4.00	------	------	------
Normal Division	3.00	10.00	9.00	4.00	------	------	------
Veterinary Division	13.50	16.00	9.00	4.00	13.00	10.00	------
Students in Civil Engineering	1.00	1.00	5.00	3.00	------	------	------
Students in Mechanical Engineering	2.00	3.00	6.00	3.00	2.00	2.00	2.00
Students in Electrical Engineering	2.00	4.00	6.00	3.00	------	------	------
Students in Chemistry	13.00	13.00	6.50	4.00	------	------	------
Students in Textile Industry	8.00	7.00	7.00	3.00	8.00	5.00	5.00
Students in Textile Dyeing	10.00	10.00	7.00	3.00	------	------	------
Students in Normal Course for Teachers	--------	--------	--------	--------	8.00	5.50	7.50

Note.—The College Bursar is forbidden by the Trustees to give credit.

All unused deposits are refunded to the student at the end of the session or upon his withdrawal from College. If he has overdrawn his deposit he is required to pay the amount of the overdraft.

If the student has a scholarship, he does not pay tuition.

Students entering after September will pay on entrance all the items enumerated under "September," less a credit in part for tuition and room rent.

WHAT A STUDENT NEEDS FOR HIS ROOM.

The College rooms are supplied with necessary furniture. Each student, however, should bring with him two pairs of blankets, two pairs of sheets, one pillow and two cases, and two bedspreads for a single bed.

SCHOLARSHIPS CARRYING FREE TUITION.

1. Regular Scholarships.—When the College was chartered the Legislature required the Trustees to admit, free of tuition, one hundred and twenty young men. The only conditions attached to

these scholarships are that they shall go to young men (1) who are unable to pay for all of their education, and (2) who are of excellent moral character. As far as possible these appointments are distributed among the different counties. Appointments are made by the President of the College after inquiries as to the needs and character of applicants and after a written recommendation from a member of the Legislature from the applicant's county. Certificates of inability to pay have to be made by the applicant and his parents. Blanks are furnished for this purpose.

2. Agricultural Scholarships.—The Legislature of 1913 authorized the College Trustees to give a limited number of agricultural scholarships to students who agree to teach for two years in an agricultural school, or to serve in an agricultural experiment station, or to farm in the State for two years after graduation. The same conditions as to financial inability and moral worth go with these scholarships as go with the regular ones.

3. Southern Railway Scholarships: William Wilson Finley Foundation.—The Southern Railway, under the above foundation, offers four scholarships, each valued at $75 a year, to needy and worthy young men who live in counties traversed by any line of the Southern Railway, and who wish to study agriculture.

4. Norfolk Southern Railway Scholarships.—Two scholarships. each valued at $75, are given by the Norfolk Southern Railway to deserving young men who reside in counties on the lines of this railway. These are awarded only to agricultural students.

5. The John L. Roper Lumber Company Scholarships.—This company gives yearly two scholarships that cover an agricultural student's tuition. Like the other scholarships these are intended for young men of good character and of needy circumstances.

SELF-HELP.

Some students who are alert and energetic frequently earn part of their expenses in College. Some of the agricultural students find work at odd hours on the farm, in the orchard, in the barn, in the dairy. Some students act as agents for laundries, for furnishing-houses, for pressing clubs. The College employs a few students for the dining-room and for other purposes. A student's ability to help himself will depend largely on his own power to find work and to hold it after he finds it. It must, however, be remembered that the duties of the classroom take most of a student's time. College duties begin at 8 a. m. and do not end until 4 p. m., and then drill comes from 4 p. m. to 5 p. m.: hence hours for remunerative work are very limited.

STUDENT LOAN FUND.

The Alumni Association of the College established in the year 1900 a small fund to be lent to needy students of talent and character. This has been augmented from various sources and now amounts to $4,663.70. The loans are made at 6 per cent, and good security is required. Sufficient time for repayment is given to enable the student to earn the money himself. The amount lent to each student is limited. The purpose is to help young men who are willing to help themselves and who cannot find sufficient employment while in college to meet all their necessary expenses.

Contributions are solicited for this fund from students, alumni, and friends of education generally. The fund is administered by the College Bursar, under the direction of the President.

TIME OF REGISTRATION.

All students are required to register within twenty-four hours after reaching Raleigh. A failure to comply with this rule may lead the Faculty to decline to allow an applicant to register.

BOARD AND LODGING.

All students are required to board in the College dining hall or in approved boarding-houses near the College, and to room in the College dormitories. An abundant supply of plain, nourishing food, with as large a variety as possible, is furnished absolutely at cost. The charge at present is $11 per month, payable in advance.

Rooms in the College dormitories are supplied with electric lights, steam heat, and all necessary furniture, except sheets, blankets, pillow-cases, pillows, bedspreads, and towels, which each student must furnish for himself. The charge for lodging is by the month, and there is no reduction in case of withdrawal.

DRILL.

In return for the Morrill Fund of the United States Government, the College is under contract to require its students to drill at least three times each week, and an Army officer is detailed to conduct the drills. No student will be excused from drill unless the College Physician, after examination, deems him unfit for military duty.

UNIFORM.

The College uniform must be worn by all students when they are on military duty. It must be bought at the College from the regular

contractor. The uniform is of strong gray cloth and with proper care should last two or three years.

No uniform overcoat is required, but every student should bring a comfortable overcoat with him.

CARE OF THE SICK.

Every effort is made to protect the health of young men in the College. Regular inspections of the entire institution are made once a year, or oftener, by the State Board of Health. Similar inspections are made monthly by the College Physician.

Each student has a regular routine of daily life, including abundant physical exercise in the shops and on the drill grounds.

In case of sickness, a student is taken immediately to the College Infirmary, where he receives medical attention and careful nursing.

The College Physician visits the Infirmary daily at 3 o'clock p. m., and in cases of serious illness as frequently as may be required.

A trained nurse has charge of the Infirmary at all times.

VACCINATION.

By direction of the Trustees, no young man will be registered unless he has been successfully vaccinated within the past two years. The College greatly prefers that all applicants for admission should be vaccinated at home, and that a certificate of successful vaccination within the past two years be brought from the family physician. In case this cannot be done, the College Physician will vaccinate applicants before they are registered at the College. A blank form to be filled by the home physician will be mailed on application. It will save a great deal of time and trouble, therefore, to be vaccinated before applying for registration. In this way applicants will avoid the inconvenience and discomfort resulting from vaccination while at College. The size of scar resulting from a previous vaccination is not proof that revaccination is not needed.

TYPHOID INOCULATION.

Believing that students may be safeguarded from typhoid fever by inoculation against this disease to which young people are peculiarly susceptible, the College offers this preventive free of charge, and urges, but does not require, all its new students to take the treatment. Parents are requested to join the College in recommending that their sons be inoculated here or to have them inoculated at home.

COURSES OF INSTRUCTION.

The College offers courses of instruction in the following subjects:

I. Agriculture.

(*a*) **Four-year course** including Agronomy, Soils, and Drainage, and Agricultural Chemistry; Animal Husbandry, Dairying, and Poultry Husbandry; Horticulture and Botany; Veterinary Science; Normal Course.

(*b*) **Course in Veterinary Medicine,** two years.

(*c*) **Two-year Course in Agriculture.**

(*d*) **One-year Course in Agriculture.**

(*e*) **Four-weeks Course in Agriculture and Dairying,** beginning at the opening of college in January.

These courses are described on pages 41-91.

II. Engineering, Mechanic Arts, and Chemistry.

(*a*) **Four-year Course in Civil Engineering.** Pages 93-97.

(*b*) **Four-year Course in Mechanical Engineering.** Pages 98-108.

(*c*) **Four-year Course in Mechanic Arts.** Pages 109-113.

(*d*) **Four-year Course in Electrical Engineering.** Pages 114-121.

(*e*) **Four-year Course in Chemistry.** Pages 122-131.

III. Textile Industry.

(*a*) **Four-year Textile Course.** Pages 132-141.

(*b*) **Four-year Dyeing Course.** Pages 141-150.

(*c*) **Two-year Textile Course.** Pages 151-155.

IV. Normal Courses for the training of teachers in indutsrial subjects.

(*a*) **Two-year Course in Agriulture.** Pages 156-158.

(*b*) **One-year Course in Agriculture.** Pages 156-158.

(*c*) **Summer School for Teachers.** A four-weeks' course in the sciences underlying modern agriculture, and in their practical application. See page 159.

V. Graduate Courses.

Extending over one or more years and leading to advanced degrees. These are intended for students who have completed the

four-year course and who desire further instruction and training in special subjects. Page 160.

VI. Degrees.

The four-year courses offer a combination of practice and theoretical work, about half the time being devoted to lectures and recitations and the other half to work in the shops, laboratories, drawing-rooms, greenhouses, dairies, poultry yards, fields, and mills. They are intended to furnish both technical and liberal education. The degree of Bachelor of Science is conferred upon a graduate of the four-year courses in Agriculture, in Chemistry, and in Dyeing; and the degree of Bachelor of Engineering is conferred upon a graduate of the four-year Engineering course, or the four-year Textile course.

The short courses include nearly all of the practical work of the four-year courses with less theoretical instruction. They are intended for students who desire chiefly manual training. They do not lead to a degree.

AGRICULTURAL COURSES.

a. The Four-year Course in Agriculture.
b. Course in Veterinary Medicine, two years.
c. The Two-year Course in Agriculture.
d. The One-year Course in Agriculture.
e. The Four-weeks Winter Course in Agriculture.

Aim and Scope.—The aim of the Agricultural Courses is to train young men in both the science and the practice of their vocation. It is believed that every young man preparing to farm needs a double education—one that is practical, to fit him for his profession; another that is cultural, to fit him to live.

In order to meet the necessities of all young men who desire instruction in Agriculture, the College offers five distinct courses:

a. The Four-year Course aims to give a training that is thoroughly practical as well as scientific in Agriculture and its various branches, such as Stock-raising, Dairying, Poultry Raisng, and Horticulture. The strictly technical portion constitutes about one-third of the work. Of the remaining two-thirds of the course, more than one-half is prescribed in the sciences. This is done for the training and information they give, and to prepare for the technical work of the course. Because of this, and because the subject-matter and the methods of the technical portion lie so fully within the domain of science, the course is essentially scientific rather than literary. Yet the College is mindful of the fundamental character of such studies as Mathematics, English Literature, Physics, etc., and they are not neglected in this course. **Full description of the Four-year Course begins on page 43.**

b. The Course in Veterinary Medicine has been established at this College as the result of a rapidly increasing demand for qualified veterinarians. The purpose of the course is to give a broad and thorough basic training in the fundamentals of veterinary medicine, along with abundance of practical work in the clinics, laboratories, judging and dissecting rooms.

The work of these first two years is correlated with that of the junior and senior years at a number of the better veterinary colleges, in which colleges subject credit may be obtained for work taken here. **For outline and description of course, see page 72.**

c. The Two-year Course in Agriculture is offered to meet the

necessities of young men who wish to prepare themselves in the art rather than in the science and art of agriculture. This course does not lead to graduation, but is designed to help young men better fit themselves by a year or two of practical work for their chosen sphere of industrial activity in the garden, orchard, on the farm, and in the production of animals and animal products. **The Two-year Course is described on page 77.**

d. The One-year Course in Agriculture is designed to meet the needs of young men who are ambitious to excel in the vocation of farming, and who feel the need of better preparation for their life-work. The time which can be devoted to study is often limited; hence the topics in this course have been arranged in such a manner that the student is enabled to get the greatest amount of practical information in the time at his disposal.

Education and training pay on the farm as elsewhere. The young man who prepares himself for his life's work will make more rapid strides and will gain success much quicker than the one who does not.

The College has numerous calls for young men to manage farms and estates. It is able to fill only a limited number of them. Young men who have any talent along this line can fit themselves for this work by taking this course. **The One-year Course is described on page 82.**

e. The Four-weeks Winter Course in Agriculture is established to meet the needs of those who can spend only the winter at the College. The important and practical subjects of Agriculture and Horticulture and Stock-raising receive principal attention. **The Four-weeks Course is described on page 85.**

Methods of instruction.—Instruction is by laboratory work, supplemented by text-books, lectures, and reference readings, which are assigned from standard volumes and periodicals.

The equipment for the technical work of the Agricultural course is rapidly increasing. The Dairy Department is equipped with a modern creamery for pasteurizing, separating, creaming, and churning, and for investigation in dairy bacteriology.

The department makes free use of the fields, orchards, and gardens, in which the Agricultural Experiment Station conducts experiments in methods of culture, in effects of several practices on yield and on fertility, and in varieties of fruit, of vegetables, and of forage crops. The methods employed and the results obtained are freely used for instruction.

DEPARTMENT OF AGRICULTURE.

I (a). Four-year Course in Agriculture.

This course leads to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mathematics, 110, 111	5	5
English, 120, 121	3	3
Botany, 30	3	3
Agriculture, 1	3	0
Animal Husbandry, 40	0	3
Chemistry, 90	3	3
Drawing, 152, and Wood Shop, 150	2	2
Drill, 153	3	3
Totals	22	22

Sophomore Year.

Farm Equipment, 2	0	2
English, 122, 123	3	3
Chemistry, 91	3	3
Zoology, 80	0	3
Physiology, 60	0	3
Botany, 31	3	0
Dairying, 48	3	0
Vegetable Gardening, 21	0	3
Plant Propagation, 20	3	0
Physics, 100	3	3
Geology	2	0
Tactics, 154	1	1
Drill, 153	3	3
Totals	24	24

AGRONOMY DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agronomy, 3 and 4, Cereals	4	4
Soils, 10	3	3
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Poultry, 51	3	0
Entomology, 85	2	2
Chemistry, 92, 93	3	3
English, 124	3	3
Drill, 153	3	3
Totals	24	24

Senior Year.

Agronomy (5), Farm Crops	3	3
Agronomy, 6	0	3
Farm Management, 7	3	0
Drainage, 12, and Fertilizers, 11	2	2
Practical Pomology, 22, and Plant Breeding, 25	3	3
Plant Diseases, 32	2	2
Chemistry, 94	2	2
Economics, 130, 131	3	3
Elective	4	4
Totals	22	22

Elective.

English, 125, 126	2	2
Pruning and Orchard Protection, 24	0	3
Poultry, 52	3	0
Animal Husbandry, 44	3	3
Modern Language	3	3
Soils, Advanced, 13	3	3

HORTICULTURAL DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Animal Husbandry, 43	0	3
Bacteriology, 33	0	3
Chemistry, 92, 93	3	3
English, 124	3	3
Entomology, 84	3	0
Practical Pomology, 22	3	0
Greenhouse Construction, 23	3	0
Pruning and Orchard Protection, 24	0	3
Plant Breeding, 25	0	3
Poultry, 51	3	0
Soils	3	3
Drill, 153	3	3
Totals	24	24

Senior Year.

Agronomy, 3 and 4, Cereals	4	4
Drainage, 12, and Fertilizers, 11	2	2
Botany, Plant Diseases, 32	2	2
Horticultural Entomology, 87	2	2
Greenhouse Management, 26	3	0
Systematic Pomology, 27	3	0
Landscape Gardening, 28	0	3
Horticulture—Elective, 29	0	3
Economics, 130, 131	3	3
Elective	3	3
Totals	22	22

Elective.

Farm Management, 7	3	0
Agronomy (5) Crops	0	3
German, 130, or French, 131	3	3
Chemistry (Agricultural), 94	2	2
English, 125, 126	2	2

ANIMAL HUSBANDRY DIVISION.

Junior Year.

Subjects.	Periods a Week	
	1st Term.	2d Term.
English, 124	3	3
Soils, 10	3	3
Veterinary Medicine, 61 *a*, *b*	3	3
Poultry, 51	3	0
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Zoology, 81	3	0
Entomology, 86	0	3
Chemistry, 92, 93	3	3
Drill, 53	3	3
Totals	24	24

Senior Year.

Animal Husbandry, 44	3	3
Animal Husbandry, 45	3	3
Economics, 130, 131	3	3
Agronomy, 3 and 4, Cereals	4	4
Agronomy, 5, Farm Crops	0	3
Farm Management, 7	3	0
Dairy Bacteriology, 35	3	0
Advanced Dairying, 49	0	3
Elective	3	3
Totals	22	22

Elective.

Animal Husbandry, 46, 47	2	2
Veterinary Medicine, 62 *a*, *b*	3	3
Advanced Physiology	3	0
Chemistry, 94	2	2
English, 125, 126	2	2
Poultry, 52	0	3
Economics, 132, 133, 134		

VETERINARY DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Anatomy and Clinics, 64, 66	3	3
Histology, 63	2	2
Materia Medica, 65	0	3
English, 124	3	3
Agronomy, 3 and 4, Cereals	4	4
Poultry, 51	3	0
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Soils, 10	3	0
Drill, 153	3	3
Totals	24	24

Senior Year.

Anatomy and Clinics, 67, 72	3	3
Physiology, 68	3	3
Pathology and Bacteriology, 69	2	2
Pharmacy, 70	3	0
Diagnosis, 71	0	3
Animal Husbandry, 44	3	3
Agronomy, 7 and 5	3	3
Chemistry, 94	2	2
Dairy Bacteriology, 35	3	0
Zoology, 82	0	3
Totals	22	22

NORMAL DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 124	3	3
Chemistry, 92, 93	2	2
Soils	3	3
Agronomy, 3 and 4, Cereals	4	4
Entomology, 84	3	0
Economics, 130, 131	3	3
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Drill, 153	3	3
Totals	24	24

Senior Year.

Drainage, 12, and Fertilizers, 11	2	2
Plant Diseases, 32	2	2
Entomology, 87	2	2
Plant Breeding, 25	0	3
Poultry, 51	3	0
Agronomy, 7 and 5	3	3
Elective	10	10
Totals	22	22

Elective.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 125, 126	2	2
Practical Pomology, 22	3	0
Landscape Gardening, 28	0	3
Chemistry, 94	2	2
German, 130, or French, 131	3	3
Economics, 132, 133, 134	3	3
Bacteriology, 34	3	3
Zoology, 83	3	3
Soils, 13	3	3
Animal Husbandry, 44	3	3
Veterinary Medicine, 62*b*	0	3
Advanced Physiology, 62*a*	3	0

AGRICULTURAL EQUIPMENT.

In addition to Patterson Hall and the Animal Husbandry Building, with their classrooms, laboratories, dairy, stock-judging room and offices, the College possesses the following equipment for instruction in Agriculture:

The farm includes four hundred and eighty-five acres, with two hundred and sixty acres under cultivation; a two-story sixteen-stall horse and storage barn; a fifty-stall dairy barn; a large combination horse, implement, and storage barn; a large implement, fertilizer and grain barn; and a calf barn; silos with capacity for four hundred tons of silage; a No. 17 Ohio feed and ensilage cutter operated by an electric motor, and implements and machinery necessary for up-to-date farming.

The live stock consists of the necessary Percheron mares and mules, a Percheron stallion, a herd of dairy cattle, and pure-bred swine. Breeding stock is sold as a part of the farm products.

The poultry plant has a number of breeding pens with necessary yards, the houses being of two different types well suited to poultry-keeping in North Carolina; an incubator room with three makes of incubators; a brooder house partially heated by hot water,

and several makes of indoor brooders. Ten or fifteen varieties of poultry are kept, and eggs and breeding fowls are sold to the public.

The horticultural equipment consists of about thirty acres in tree fruit, nuts, vineyard, berries, and vegetables, in appropriate assortment of classes and varieties for demonstration and instruction. These afford means for work in seed selection, bud studies, propagation, budding, grafting, transplanting, pruning, spraying, and variety study.

The dairy equipment is complete and thoroughly modern. The laboratory occupies about four thousand feet of floor space in Patterson Hall, and is equipped for instruction in farm dairying, retailing milk, creamery practice, cheese and butter making, milk testing and pasteurizing. The dairy equipment is modern and complete.

The North Carolina Experiment Station is a department of the College, and its close association with the School of Agriculture gives exceptional opportunities to the Agricultural students for instruction and observation covering experiments and research in agronomy, chemistry, horticulture, vegetable pathology, plant diseases, bacteriology, dairy and animal husbandry, poultry husbandry, veterinary science, and entomology.

AGRONOMY.

Equipment.

The class rooms, laboratory, offices, storage, supply and fertilizer rooms are in Patterson Hall. The Department has the necessary accessories for present-day instruction in agronomy, and additions are made as needed. The Department operates the College farm of about one hundred and forty acres. A large horse barn with corn bins, harness rooms, and hay mows, accommodates a dozen mules and Percheron mares. Another large three-story barn accommodates seeds, supplies, tools, implements and machinery for operating the farm and giving practical farm work to students. A portion of the farm is set aside for the exclusive use of students in securing practical farm experience with very nearly all of the farm crops of the State. This practice work includes soil preparation, mixing and applying fertilizers, cultivating and harvesting, crop breeding and laboratory study of the crops grown by the students. The field, laboratory and class instruction are the three parts of the student's work which together make up the course of instruction in Agronomy.

Subjects of Instruction.

1. Agriculture.—This course is introductory to agriculture in its broader sense, and is popular rather than technical. The simpler principles and practices of the farm in relation to soils, plants, tillage, fertilizers and the conservation of fertility are among the subjects first taken up. This is followed by a brief discussion of the crops of the State, seed selection, rotation, etc. The remainder of the course is devoted to a rather comprehensive study of the corn plant, including soils, fertilizer and rotations suitable to this crop; seed selection and corn judging, uses, etc. Three periods, first term. Required of Freshmen. Professor NEWMAN.

2. Farm Equipment.—Selecting, laying out and equipping farms; locating, planning and constructing farm buildings; fences, gates, bridges, roads; tools, implements and machinery; miscellaneous appliances; farm power; water supply and sanitation. Two periods second term. Required of Sophomores. Professor NEWMAN.

3. Agronomy: (a) Cereals.—The history, production, uses and improvement of corn, wheat, oats and other cereals adapted to the State. Two periods through Junior year for Agronomy, Veterinary and Normal Divisions; through Senior year for other divisions. Mr. HODSON.

4. Agronomy: (b) Cereals.—This is a Laboratory and Field Practice Course, and parallels the Agronomy 3 course described above. One period through the year is devoted to laboratory and class work and one period through the year to field practice. A portion of the college farm is set aside for the growing of various farm crops by the students, that they may become familiar with crops and the methods of their culture. Each student is required to keep a complete record of all operations, including date of seeding, amount of seed, preparation of soil, fertilization, and other details involved in crop production, beginning with seeding, and extending through harvesting. Required of Juniors in Agronomy, of Normal and Veterinary divisions, and of Seniors in Horticulture and Animal Husbandry divisions. Mr. HODSON.

5. Agronomy: Farm Crops.—This course is a continuation of the Junior Courses 3 and 4, and includes crops other than cereals. Cotton; tobacco; legumes; hay; forage and pastures; silage production; sweet potato; peanuts, etc., are taken up in the order given. All of the first term is devoted to cotton and tobacco. Rotation, the development and conservation of fertility in connection with the use of these crops on the farm or their sale. Application of the principles of breeding to cotton, tobacco, corn and other crops.

Each student is required to present a monograph on some crop or some subject of close relationship to important crops of the State. Three periods through the year. Required of Seniors in the Agronomy Division. The second term is required of the Seniors in the Animal Husbandry Division, in the Veterinary Division, and in the Normal Division. Professor NEWMAN.

6. Agronomy.—This course is for students specializing in Agronomy. Each student is assigned a subject or group of related subjects for study, and the result of his investigations is reported in bulletin form. Experimental methods and results of experiments are studied. Experiments are planned and the results worked up and conclusions drawn. Three periods second term. Required of Seniors in Agronomy Division. Professor NEWMAN and Mr. HODSON.

7. Farm Management.—Types of farming and their relation to soil, climate, labor, transportation, population, capital and land values; operating expenses; systems of land tenure, farm organization; size of farms; location and arrangement of buildings; roadways, fences, water supply, orchard, garden, etc.; factors governing nature and amount of equipment; financial accounts; farm records; diversification; rotation from a business point of view; cropping systems; relationship of animal and plant production; maintenance of fertility; standard of living; schools; churches. Three periods, first term. Required of Seniors in Agronomy, Animal Husbandry, Normal and Veterinary Divisions. Professor NEWMAN.

SOILS.

Equipment.

The Soils Department has a large new laboratory in Patterson Hall furnished with solid oak desks and lockers so arranged as to accommodate a large number of students in general soils work and to allow individual locker space with plenty of working room for each student. These desks and lockers, with other tables and soil chests, were designed and made to order for this laboratory, and hence are arranged to give the greatest convenience and the most complete use of the room that is possible.

The apparatus is all of the latest and most approved models, giving greater utility and accuracy, combined with simplicity, than would be possible with any other.

In addition to the laboratory facilities, the department makes use of the College farm for its practical work in drainage, terracing, fertilization, cultivation, and study of soil types. A series of plats for soil demonstration work has been arranged which is expected

to illustrate many features of practical importance in the maintenance of soil fertility.

Subjects of Instruction.

10. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the United States, and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of all Juniors. Veterinary Division, first term only. Prerequisite, Chemistry 90 and 91 and Physics 100. Professor SHERWIN.

11. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability, and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers as shown by their productive capacity. Two periods, second term. Required of Seniors. Prerequisite, Soils 10. Professor SHERWIN.

12. Farm Drainage.—This includes both principles and practice of drainage. The student becomes familiar with the use of various drainage instruments and implements, as the course involves considerable field work in laying out systems of under-drains. Different methods of leveling and determining grade are discussed and practiced.

Determination of size of tile needed, depth and method of laying, influence of depth of tile and distance apart of drains on withdrawal of water from the soil, and all of these as influenced by texture and character of the soil, are considered. Drainage by means of open ditches and surface drainage by means of terraces will also be given attention. Two periods a week, first term. Required of Seniors in Agronomy, Normal and Horticulture. Prerequisite, Soils 10. Professor SHERWIN.

13. Advanced Soils.—In this course the student will be guided in the study of any line of Soils work he may choose, either along practical or scientific lines. Laboratory and field work will be

given. Considerable reference will be made to Experiment Station literature with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. Three periods a week throughout the year. Elective for Seniors. Prerequisite, Soils 10. Professor SHERWIN.

HORTICULTURE.

Equipment.

The Department of Horticulture is provided with facilities for instruction which are singularly efficient in many respects, and additions which are now being made, together with others which are expected in the near future, will equip it with unexcelled means for teaching horticulture in all its branches. At present the offices and class rooms are located in Patterson Hall. New laboratory space is being provided by the erection of a forty-one foot section of a brick and slate structure to be known as the Service Building, and one attached iron frame greenhouse covering a space thirty by one hundred feet. The Service Building, which is twenty-five feet wide, will eventually be lengthened to seventy feet, and to it will be attached another greenhouse of the same size as the one now being built. The Department is also charged with the management of about twenty-five acres of land devoted to fruits and vegetables of all kinds, and of the College campus, covering about fifty-five acres, which is in the process of development in accordance with artistic and scientific principles of landscape design.

The laboratory space is constantly in use as a workroom for classes in all subjects, and is well supplied with tools and necessary pieces of apparatus. The greenhouse, hotbeds, and cold-frames will provide room and facilities not only for growing early vegetables and flowering plants, but also for the forcing of both vegetables and flowers under glass. Here the student will be allotted a definite space and be required to put into practice the knowledge gained in the class room by growing the crops there treated. Practice work is an essential adjunct of every course. Student work under competent supervision is employed in all parts of the grounds.

The Horticultural Grounds, which contain about twenty-five acres, provide exceptional facilities for additional training in vegetable gardening, and for instruction in pomology and plant breeding. Here are located the "Student" vegetable gardens, which the students are required to plan, plant, and manage. Here, also, are to be found an orchard each of apples, pears, pecans and figs; a vineyard each of "bunch" and muscadine grapes; and smaller plant-

ings of plums, persimmons, quinces, cherries, raspberries, blackberries, dewberries, strawberries. The remaining and intermediate spaces are used for growing vegetables on a larger scale; the maintenance of a nursery for fruit and ornamental plants; and the ornamental planting about the residence situated near the middle of the grounds, which as a whole are designed to serve as a model of a small fruit farm economically and tastefully arranged.

Subjects of Instruction.

20. Plant Propagation.—A course in the multiplication of plants. Seedage, separation and division, cuttage, layerage, and graftage are considered in turn. The most commonly used methods of propagating vegetables, fruit and ornamental plants are emphasized. Three periods, first term; recitation, two hours; practice, two hours per week. Required of Sophomores. Mr. STODDARD.

21. Vegetable Gardening.—A course dealing with the principles of vegetable growing and the methods employed in the Home, Truck and Market gardening areas. Special attention is given to the Home Garden, and the Trucking Industry in North Carolina. Consideration is given to sites, soils, manures and fertilizers, seed sowing, transplanting, and the culture, harvesting, storing and marketing of all important vegetables. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Sophomores. Prerequisite, Plant Propagation 20. Mr. STODDARD.

22. Practical Pomology.—A general course in fruit growing. Among the subjects considered are the choice of locations, the selection of sites and soils; the choice of varieties; the preparation of the land; the planning, planting, fertilization and management of orchards; and the harvesting, storing and marketing of fruits. Practice consists in the inspection and examination of sites and soils, the making of orchard plans; laying out orchards; handling and planting trees; and the exercise of modern methods of grading, packing, and marketing fruits. Three periods, first term; recitation, two hours, practice two hours per week. Required of Juniors in Horticultural Division and of Seniors in Agronomy Division. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

23. Greenhouse Construction.—A course of study of the different forms of greenhouses and glass structures used for growing plants, and their adaptation to different purposes. Practice work consists in the drawing of plans, estimating cost of building and heating. These periods, first term; recitation, one hour; practice, four hours

per week. Required of Juniors in Horticultural Division. Prerequisite, Vegetable Gardening 21. Professor PILLSBURY.

24. Pruning and Orchard Protection.—A course in the training of fruit plants and their protection from insect pests and fungous diseases. Treatment of special diseases and methods of protection from frost are also considered. A continuation of Practical Pomology. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Juniors in Horticultural division. Prerequisite, Practical Pomology, 22. Mr. STODDARD.

25. Plant Breeding.—A course in the study of the principles of plant breeding, and practice of the most approved methods of pollination, crossing and selection for the origination and improvement of varieties of plants. Mendelism and biometrical measurements constitute an important part of the course. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Juniors in Horticultural and Seniors in Agronomy and Normal divisions. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

26. Greenhouse Management.—A course which treats of the principles and practice of growing plants under glass. It includes the forcing of both vegetable and flowering plants. A given area is assigned to each student and he is required to plan, plant, and manage it to a successful conclusion. Three periods, first term; recitation, two hours; practice, two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Vegetable Gardening 21. Mr. STODDARD.

27. Systematic Pomology.—A course which combines both a study of the origin and evolution of our native fruits, and practice in description, identification, classification, and judging of varieties. Three periods, first term; recitation, two hours; practice, two hours per week. Required of Seniors in Horticultural division. Prerequisites, Practical Pomology 22 and Plant Breeding 25. Professor PILLSBURY.

28. Landscape Gardening.—A course in the study of the principles of the arts of design, and their application to the design of landscapes. The principal styles of composition are considered and compared as to history, development and adaptation. Practice consists of a study of landscape materials, in mapping, designing plans, and making specifications, and in the execution of important parts of the practical work of improving grounds. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Seniors in Horticultural Division. Prerequisites, Plant Propagation 20. Professor PILLSBURY.

29. Horticulture, Elective.—A course designed to give the student an opportunity to elect and pursue the study of some special line of horticultural investigation. Three periods, second term; hours to be arranged. Open to Seniors in Horticulture only. Professor PILLSBURY.

BOTANY.

(Botany, Plant Pathology and Bacteriology.)

Equipment.

Three commodious laboratories and a large recitation and lecture room are devoted to Botany, Bacteriology, and Plant Pathology. A research-room is provided for the use of advanced students. There are also offices for the professor and instructors, and a store-room, a dark room, and an incubator-room. All rooms are supplied with electricity, gas, and hot and cold water, and the bacteriological laboratory is, in addition, provided with steam under 80 pounds pressure for purposes of sterilizing. The laboratories are supplied with wall-cases, shelves, herbarium cases, specimen boxes, sterilizers, incubators, microscopes, microtomes, a liberal supply of glassware, and such small utensils as are needed in the prosecution of the work. The incubator-room is fire-proof, and is provided with a Weisnegg regulator capable of keeping the temperature of the room practically invariable. The excellent herbarium has been mounted, and is now accessible for class use. There is an extensive collection of seeds, both of weeds and cultivated plants, and the most important plant diseases are represented by herbarium and alcoholic specimens.

Subjects of Instruction.

30. Elementary Botany.—Recitation, laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed plants. The student's knowledge is made his own through laboratory work and simple independent investigations. Three periods. Required of Freshmen. Prerequisites for other courses in the Department. Professor FULTON, Mr. YOUNG.

31. Plant Physiology.—Recitation, lecture, and laboratory study of such fundamental physiological processes of plants as are of particular interest to students of agriculture. Absorption, nutrition, growth, and reproduction are considered. Three periods, first term. Required of Sophomores. Professor FULTON, Mr. YOUNG.

32. Plant Diseases (Advanced).—A study of representative crop diseases. This course is intended to prepare the student for practical control or further study of plant diseases. Two periods. Required of Seniors in Horticultural, Agronomy and Normal Divisions. Professor FULTON.

33. Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation and disinfection, and to the relation of bacteria to disease in plants and animals and to agricultural practice. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Three periods, second term. Required of Juniors. Mr. COOPER.

34. Bacteriology (Advanced).—A course designed to extend knowledge in special fields and to perfect the technique in bacteriology for those who desire to do original work in this subject. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, or in bacteriology of manure, water, soil, or air. The course is flexible, and will be made to fit the requirements of those students electing it. Three periods. Elective for Seniors. Prerequisite, Botany 33. Professor FULTON, Mr. COOPER.

35. Dairy Bacteriology.—Lecture, text-book and laboratory course covering the more important facts in the relation of bacteria to dairying. The laboratory course consists in demonstrating and supplementing the lecture course. Three periods, first term. Required of Seniors in Animal Husbandry and Veterinary Divisions. Prerequisite, Botany 33. Professor FULTON and Mr. COOPER.

ANIMAL HUSBANDRY.

Equipment.

The Animal Husbandry Department now occupies the Animal Husbandry Building, which was completed during the summer of 1912. This building was constructed at a cost of twenty-five thousand dollars, and is up-to-date in every way. The department has offices, classrooms, record-room, and stock-judging room, furnishing excellent facilities for students in Animal Husbandry.

The live-stock equipment has been added to materially during the past year. A fine registered Percheron stallion and several high-grade mares are kept for horse work. These are all used for farm work and breeding purposes as well as for class work. The dairy herd now consists of seventy-five head, of which about forty are cows in milk. Three leading breeds are represented, consisting of twelve high-grade Holstein cows and a registered bull, six

pure-bred Ayrshire cows and a bull, twelve pure-bred Jerseys and a bull, the remainder being grade Jerseys and Guernseys. This gives splendid material for class work in the study of dairy breeds.

A herd of pure-bred swine has been established, consisting of the following breeds: Berkshire, Duroc Jersey, and Chester White. Good individuals have been selected and enough animals will be maintained to give the student a splendid opportunity for swine work.

The product of the dairy is sold as milk, butter, and cream to the College Dining Hall and to city customers.

Subjects of Instruction.

40. Breeds of Live Stock.—A study of the origin, history, characteristics, adaptability, and popularity of the breeds of live stock. Every opportunity will be taken advantage of to teach the student the merits of the various breeds, and, when possible, classes of the breeds will be judged. Three periods, second term. Required of Freshmen. Professor McNUTT and Mr. SALISBURY.

41. Live-Stock Judging.—A study of the score-card and its use. A comparison of the score-cards for the various breeds, and practical scoring. Methods and rules in judging the various classes of live stock. In practical judging the student will be required to give oral or written reasons to sustain his placing of the animals. Three periods, first term. Required of Juniors, except Horticulture. Professor McNUTT.

42. Stock Feeding.—A study of the composition of feeds and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles so that he can compound suitable rations for the different classes of live stock. Especial emphasis will be laid upon practical problems in feeding. Three periods, second term, except in Horticulture. Required of Juniors. Text-book, Henry's *Feeds and Feeding*. Professor McNUTT.

43. Animal Breeding.—A study of the fundamental laws and prin ciples underlying the science of breeding, and the application of these laws in breeding the different species of domestic animals. Three periods, second term, beginning about March 1. Required of Juniors. Professor McNUTT.

44. Live-stock Management.—A study of the feeding, breeding, care and management of the various classes of farm animals, including the management of breeding stock as well as work stock. Three lectures a week throughout the year. Required of Animal Husbandry Seniors. Professor McNUTT.

45. Live-stock Markets.—Lectures covering the market classes and grades of horses, cattle, sheep and swine will be given so as to make it possible for the students to become familiar with the markets and their demands. Three periods throughout the Senior year. Required of Animal Husbandry Seniors. Professor McNUTT.

46. Advanced Course in Stock Judging.—Lectures covering the subjects will be given and the students will be required to judge as many classes of stock as possible. Two periods. Elective for Animal Husbandry Seniors. First term. Professor McNUTT and Mr. SALISBURY.

47. Market Classes and Grades of Meat.—A study of the market classes and grades of beef, pork and mutton; also slaughtering, marketing, and meat cutting. The relative value of the cuts from the various parts of the carcass will be given due consideration. Two periods, second term. Elective for Seniors. Professor McNUTT.

DAIRYING.

Dairy Equipment.—The dairy laboratory occupies about four thousand square feet of floor space in the basement of Patterson Hall, besides the locker-rooms, the toilet, and bath rooms on the same floor.

The main dairy laboratory is thirty-six by fifty-seven feet, and is fitted throughout with modern equipment suited to giving up-to-date instruction in farm dairying, retailing milk, and creamery practice. The equipment for the farm dairying consists, in the main, of De Laval, Sharples, Empire, National, United States, and Simplex hand separators; swing and barrel hand churns of different sizes; cream vats, hand and power butter-workers, aerators and coolers, milk-testers, and other articles useful in doing farm dairy work.

Milk-testing, which plays such an important part in all phases of dairy work, receives a great deal of attention. Several sizes of hand machines and a twenty-four bottle power tester are used in this work, together with all equipment necessary for testing milk, cream, butter, cheese, skim-milk, and whey. The lactometer is also used to determine milk solids and specific gravity.

The equipment for giving instruction in commercial dairying consists of milk pump, receiving vat, tempering vat, turbine separator, continuous pasteurizer, combined churn and butter-worker, bottling outfit, and bottle-washing and sterilizing outfit.

Subjects of Instruction.

48. Dairying.—Text-book and lecture course covering the fundamental principles of modern dairying. The laboratory work consists of practice in the use of modern dairy equipment. Each student is required to become familiar with the construction, care, and operation of the leading makes of cream separators. Proficiency is required of the student in testing and standardizing milk and cream, and in cream-ripening, churning, working, packing, and scoring butter. Three periods, first term. Required of Sophomores. Mr. SALISBURY.

49. Advanced Dairying.—A study of the practical problems in dairy management. Dairy barn construction and arrangement of buildings and lots. The different phases of dairying will be studied from an economic standpoint. Also a study of the production of sanitary and certified milk. Dairy inspection with practice in scoring dairies. Milk inspection for adulterants and preservatives, and butter scoring. Three periods, second term. Required of Seniors in Animal Husbandry. Professor MCNUTT and Mr. SALISBURY.

POULTRY HUSBANDRY.

The poultry plant has a number of breeding pens with necessary yards, the houses being of the types well suited to poultry keeping in North Carolina; an incubator room with three different makes of incubators; and a brooder house, which can be heated by hot water when necessary, Indoor brooders of several different makes are used, including fireless and heated types.

The following varieties of poultry are kept: Barred, Buff, and White Plymouth Rock; White and Columbian Wyandotte; S. C. Rhode Island Red; S. C. White and Brown Leghorn; S. C. Black Minorca; and Buff and White Orpington; Indian Runner and Muscovy Ducks and Bronze Turkeys.

51. Poultry Husbandry.—Classification and study of the breeds of domestic poultry; breeding, feeding, and management; construction and location of poultry houses; production and marketing of eggs; production, killing, and marketing of poultry; natural and artificial incubation and brooding. Three periods, first term. For Juniors. Mr. TAYLOR.

52. Poultry Husbandry.—Theory and practice of judging fowls by comparison; comparison of different systems of poultry keeping; artificial incubation and brooding. Capons and caponizing. Three periods, second term. For Seniors. Required only of Seniors in Normal Division. Mr. TAYLOR.

VETERINARY SCIENCE.

(Anatomy, Physiology, and Veterinary Medicine.)

For Course in Veterinary Medicine, see page 72.

Equipment.

For instruction in the above subjects, the department is provided with offices, lecture-rooms, laboratories, pharmacy-room (for drugs and surgical instruments), and dissecting-room.

The offices contain the usual office fixtures, besides a library of most of the standard works on veterinary medicine in English.

For use in classroom and laboratory, the department is supplied with mounted skeletons of man, of horse, and of cow; also numerous specimens of tumors, tuberculous organs, bony lesions of spavins, splints, ring bones, and side bones. Besides the collection illustrating diseased tissues, the department has a large collection of parasites which infest domestic animals.

The laboratories are provided with wall cases, work tables and desks, washing sinks, hot and cold water, gas burners, and electric lights. The laboratory for special work has microtome (for cutting sections of tissue for study with microscope), glass slides, stains, and the various materials required for making temporary and permanent mounts of healthy and diseased tissues. The larger laboratory is supplied with the necessary equipment for conducting exercises in physiology.

In the pharmacy-room are samples of a large number of drugs used in comparative medicine, and a more or less complete set of surgical instruments, including an operating table for small animals, and casting harness and slings for larger animals.

Subjects of Instruction.

60. Animal Physiology.—Mounted skeletons of man, of the horse, and of the cow will be used in a brief study of elementary anatomy of man and domestic animals. This will be followed by a comparative study of some of the functions of the various systems and organs of the body, such as the skeleton, muscles, nerves, organs of special sense, digestion, circulation, respiration, skin, etc. The subject will be covered by lectures, recitations, demonstrations and laboratory exercises. Three periods, second term. Required of Sophomores. Doctor HANDLEY.

61. Veterinary Anatomy and Physiology.—Text-books, supplemented by lectures and illustrated by charts, models, skeletons, sketches and dissections will be used. Anatomy and physiology are

fundamentals in any system of medicine as well as essential to a comprehensive study of live stock. Special attention will be given to the systems and organs of locomotion, digestion, respiration and reproduction. Three periods, first term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS.

61. (b) Veterinary Hygiene, Sanitation and Practice.—Preventive medicine is the goal of the human physician, the veterinarian and the sanitarian. Therefore to sanitarians a rather comprehensive knowledge of hygiene and sanitation is necessary. Considerable time will be devoted to a study of the causes of disease and the means of avoiding them through hygienic and sanitary measures. Some few diseases will be discussed more or less in detail, and a weekly clinic will be held at the hospital. Three periods, second term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS and Doctor KOONCE.

62. (a) Veterinary Science—Advanced Physiology.—Appreciating the value of many of the interesting phenomena in physiology, opportunity is given to consider those especially applicable for the animal husbandman and the teacher. Three periods, first term. Elective for Seniors in Animal Husbandry and Normal Divisions. Professor ROBERTS and Doctor HANDLEY.

62. (b) Veterinary Science; Infectious Diseases.—This course while correlating with the Junior work and Senior physiology will not require these courses as prerequisites. Attention will be given to those infectious diseases that are common in the South and especially those that occur both in man and animals. Their cause, symptoms and control will be discussed. Three periods, second term. Elective for Seniors in Animal Husbandry and Normal Divisions. Professor ROBERTS and Doctor HANDLEY.

For agricultural students intending to pursue a veterinary course, opportunity will be given during their Junior and Senior years to elect subjects required in the Freshman and Sophomore years of such a course.

63. Histology.—A misroscopical study of the tissues of the body, treating of the cell as the unit of structure, and of its functions; also of tissues, their classification, and their relation to the structure of organs. From dissections, clinics, and proximity to slaughter-house, abundance of histological material of various animals is received. Two periods. Required of Juniors in Veterinary Division. Doctor HANDLEY.

64. Veterinary Anatomy.—This subject will deal with the study of the skeleton, including bones and joints, and of muscles and digestive organs. A complete dissection of the muscles of the horse will

be made. Three periods. Required of Juniors in the Veterinary Division. Doctor HANDLEY.

65. Materia Medica.—A study of the drugs used in comparative medicine will treat of their classification, composition, physiological actions, and doses. Three periods, second term. Required of Juniors in Veterinary Division. Professor ROBERTS.

66. Clinics.—An essential part of the training of students in comparative medicine consists in seeing for himself animals suffering with the various diseases discussed in classroom. To this end abundant clinic material is available in the veterinary hospitals in Raleigh. Clinic periods will be used for dissection from November to March. Three periods. Required of Juniors in Veterinary Division. Professor ROBERTS, Doctors KOONCE and HANDLEY.

67. Veterinary Anatomy.—A continuation of course 64. A study the digestive, respiratory, circulatory, and nervous systems will be made, with complete dissection of each in the horse. Three periods. Required of Seniors in Veterinary Division. Professor ROBERTS.

68. Veterinary Physiology.—A comparative study of the bodily functions of the various domestic animals is made, with special reference to digestion, respiration, circulation, and secretion. Three periods. Required of Seniors in Veterinary Division. Doctor HANDLEY.

69. Pathology and Bacteriology.—A large number of specimens of diseased tissue already present in the museum and opportunity for collecting others from clinics and abattoirs insure plenty of material to demonstrate the various macroscopical and microscopical changes in organs and tissues due to disease. Especial attention is paid to the isolation and study of the pathogenic bacteria from the various organs of diseased animals. Two periods. Required of Seniors in Veterinary Division. Doctor HANDLEY.

70. Materia Medica and Pharmacy.—Course 65, as described above, will be continued, including prescription writing and laboratory work in the preparation, compounding and dispensing of medicines. Three periods, first term. Required of Seniors in Veterinary Division. Professor ROBERTS.

71. Clinical Diagnosis.—This subject is taught for the purpose of studying the methods for the examination of animals to detect and diagnose the various diseases affecting them. Three periods, second term. Required of Seniors in Veterinary Division. Professor ROBERTS and Doctor KOONCE.

72. Clinics.—These will be given, as in the year previous, and will give the student opportunity of putting into practice the in-

formation he has gained from study of clinical diagnosis. In connection with the clinics autopsies are frequent held, giving the students excellent opportunities to observe changes in the body structures resulting from disease. Clinic periods will be used for dissection from November to March. Three periods. Required of Seniors in Veterinary Division. Professor ROBERTS, Doctors KOONCE and SIMMS.

ZOOLOGY AND ENTOMOLOGY.

Equipment.

The Department of Zoology and Entomology occupies the second floor of the new Animal Husbandry Building. This provides ample space for offices, laboratories, classroom, museum, library and photographic room.

The student's laboratory is a large, exceptionally well lighted room which is provided with the usual accessories of a zoological laboratory. The laboratory tables are furnished with "Kewaunee" and "Albarene" tops, and provide ample working space and individual lockers for each student.

The classroom is furnished with a Leitz projection apparatus and with a large series of charts illustrating the principal classes of animals.

The museum contains a rapidly growing synoptic collection illustrating the principal groups of animals found in North Carolina.

The library contains some of the more important books on zoological and entomological subjects and receives the current periodicals dealing with these subjects.

Subjects of Instruction.

80. Elementary Zoology.—An elementary study of all forms of animals, with special reference to the more important economic groups, is given by text-book, library, laboratory and field work, with supplementary lectures. This course is designed to give the student a general knowledge of the animal kingdom, and to lay the foundation for the special work which follows. Three periods, second term. Required of Sophomores. Professor METCALF.

81. Advanced Zoology.—This course is designed to give the student a working knowledge of the groups of animals which have furnished the principal domestic animals; with something of the history, anatomy and development of the vertebrates, together with a study of the parasites of domestic animals. Three periods, first term. Required of Juniors in Animal Husbandry. Professor METCALF.

82. Vertebrate Zoology.—This course will cover the comparative anatomy and embryology of the principal groups of vertebrates, together with a discussion of the origin, development and evolution of the vertebrates. Three periods, second term. Required of Seniors and Second Year Men. Veterinary Division. Professor METCALF.

83. Zoology—Elective.—A course designed especially for students who wish to review the fundamental principles of zoology, either as a basis for teaching or for investigational work. Two or three periods, first and second terms. Elective in Normal Division. Professor METCALF.

84. Elementary Entomology.—The elements of insect anatomy, classification and development as a foundation for economic entomology is covered by text-book, lectures and laboratory work. Three periods, first term. Required of Juniors in Horticultural and Normal Divisions. Professor METCALF.

85. Elementary Economic Entomology.—Injurious insects of field and truck crops, garden, orchard, barn and household are studied from the standpoint of their life histories and control. Text-book, laboratory and field work. Two periods, first and second terms. Required of Juniors in Agronomy. Professor METCALF.

86. Economic Entomology.—The insect enemies of domestic animals, grains and forage crops are studied from the standpoint of structure, development and control. Lecture, laboratory and field work. Three periods, second term. Required of Juniors in Animal Husbandry Division. Professor METCALF.

87. Horticultural Entomology.—Systematic study of the injurious insects of orchards, shade and ornamental plants, together with a study of the insect enemies of the principal truck and garden crops from the standpoint of their life histories and control. Two periods, first and second terms. Required of Seniors in Horticultural and Normal Divisions. Professor METCALF.

CHEMISTRY.

90. Inorganic Chemistry.—McPherson and Henderson's *General Chemistry.* The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Laboratory work accompanies the classroom work. Three periods. Required of Freshmen. Professor WITHERS, Doctor NOWELL, Mr. FETZER and Mr. SHERWOOD.

91. Analytical Chemistry.—A. A. Noyes' *Qualitative Analysis.* After the student has learned to separate and identify elements in

unknowns, special attention is given to tests of special interest to agricultural students. Three periods. Required of Sophomores. Mr. FETZER.

92. Analytical Chemistry.—Lincoln and Walton's *Qualitative Analysis*. Gravimetric and volumetric determination of elements in fertilizers, feeding stuffs and other classes of substance of importance to agricultural students. Three periods, half year. Doctor WILLIAMS.

93. Organic Chemistry.—Lectures and laboratory work. Remsen's *Organic Chemistry*. Three periods, half year. Required of Juniors. Doctor NOWELL.

94. Agricultural Chemistry.—A study of soils, plants, feeding stuffs, animal and other products, from a chemical standpoint. Two periods. For Seniors. Professor WITHERS.

PHYSICS.

100. Elementary Physics.—In this course special stress is laid upon the subjects of mechanics, liquids, gases, and heat. It includes the study of fundamental units, British and metric standard measures, definitions of force, work and power, laws of motions, principles of machines, mechanics of fluids and gases, heat, and a brief introduction to the study of sound and light. For description of the Physical equipment, see page 116. Three periods. Required of Sophomores. Associate Professor HECK, Assistant Professor MCINTYRE, Mr. MCDOWELL.

MATHEMATICS.

110. Algebra.—Wells' *New Higher Algebra*. Begins with quadratic equations and complete summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations and continued fractions. At the beginning of the term a review is usually given on involution, evolution, theory of exponents, and radicals. Five periods, first term; three periods, second term to March 15. Required of Freshmen. Prerequisites for first term, entrance requirements; for second term, the work of the first term, or, in case of failure, a term standing of 60 per cent or more, and a final examination grade of at least 40 per cent on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

111. Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry*. A complete course in plane geometry, including numer-

ous original exercises. Two periods, second term to March 15; five periods, March 15 to end of second term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

ENGLISH.

120. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods first term. Mr. PRATT, Mr. FARRELL.

121. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. FARRELL.

122. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first term and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

123. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

124. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods, two terms. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

125. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Two periods, first term. Open to Seniors. Professor HARRISON.

126. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Two periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

130. Introductory Economics.—This course is designed to train the student in the elementary principles of Economics. A brief survey will be given of the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts, and the government regulation of business. Three periods, first term. Required of all Seniors in agriculture, except veterinary and normal students. Required of normal students in Junior year. Professor CAMP.

131. Agricultural Economics.—A study is made of the organization of agriculture in Europe and the United States. The general aim of the course is to train those who are planning to become agricultural experts or farmers, to an understanding of the business side of agriculture. Three periods, second term. Required of all students of agriculture in the Senior year, except veterinary and normal students. Normal students must take either course 131 or 132 in the Junior year. Professor CAMP.

132. Banking and Farm Credit.—The purpose of this course is to give an understanding of the necessity for credit on the farm and show how the need is met by the Mutual Credit Societies of Europe, by the banks of the United States, and by other loan agencies. Three periods, second term. Elective for Seniors. Professor CAMP.

133. Railroad Transportation.—A consideration of the different systems of railroad rates as affecting the shipment and the method of sale of farm products. Three periods, first term. Elective for Seniors. Professor CAMP.

134. Trusts, Pools and Combinations.—A study of the conditions which have led to the development of large business combinations; a description of the methods of organization of typical industries; an analysis of the advantages and disadvantages to be derived from large scale business organization; and a consideration of the different policies of government regulation. Three periods, second term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The aim of the department is to enable one to use a limited vocabulary for practical purposes in speaking and writing fluently simple

sentences, without idiomatic expressions or difficult constructions; to read scientific works, and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unilingual method is used, based on conversation, humoristic anecdotes, interesting short stories, and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions, without the medium of English.

The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates, context, comparisons, contrasts, and associations, beginning with leading simple questions, and gradually progressing to more advanced ones, by frequent repetitions, and by a strict adherence to the rule that answers be always given in complete short sentences of the foreign language, and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lessons are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language, and of questions and answers in the foreign language. No English appears in an examination paper. No time is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Students may take any one or all of the modern languages during the Junior or Senior year. The work is optional, but credit towards a degree is allowed for the successful completion of the work.

130. German.—Worman's *Modern Language*, first and second German books; *Deutsches Lese und Uebungsbuch*, by Prokosh; Fischer's *Practical Lessons in German; Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; and a scientific reader. Three periods. Elective for Juniors and Seniors. Doctor RUDY.

131. French.—Worman's *Modern Languages*, first and second French books; Worman's *Frammaire Francaise;* selected short stories from French literature, and scientific readers. This subject may be taken by special petition to the Faculty. Doctor RUDY.

132. Spanish.—Worman's *Modern Languages*, first and second Spanish books; *Introduccion a la Lengua Castellana*, by Marion y Des Garrenes; a Spanish Grammar to be selected; Fontaine's *Flores de Espana*, and other short stories from Spanish literature; *Modelos*

para Cartas. Elective for Juniors and Seniors in Civil and Electrical Engineering. Doctor RUDY.

SHOP AND DRAWING.

150. Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. Required of Freshmen. Two periods, second term. Mr. WHEELER.*

152. Drawing.—Elementary drawing, elementary projection, freehand sketching and lettering. Geometrical problems. Freehand drawing. Two periods, first term. Required of Freshmen. Mr. COBURN.

MILITARY SCIENCE.

153. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

154. Tactics.—Theoretical instruction in Infantry Drill Regulations, Field-service Regulations, Map Reading, and Small Arms Firing Manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

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* For description of the equipment, see page 102.

I (b). COURSE IN VETERINARY MEDICINE.

As a consequence of the frequent inquiries concerning a course in Veterinary Medicine at this College and in a realization of the need of competent veterinarians for the live-stock and meat and milk inspection interests of the South, the first two years' work in such a course is here outlined.

This arrangement is somewhat similar to the courses in human medicine given at other institutions in the State not offering a complete course.

This course is correlated with courses in other Veterinary Colleges, so that credit may be obtained in them for the subjects taken here.

There are a number of advantages to be gained by giving such a course in Veterinary Medicine at an Agricultural College where several of the fundamental subjects, especially along live-stock lines, are so aptly given.

Opportunity is given to Agricultural students in their Junior and Senior years to elect sufficient veterinary subjects to obtain credit for Freshman and Sophomore years in a Veterinary Course. See **page 62.**

For entrance requirements and fees, see pages 30-32, 33-35.

VETERINARY COURSE, TWO YEARS.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 168	3	3
Botany, 165	3	3
Agriculture, 167	3	0
Animal Husbandry, 166	0	3
Chemistry, 169	3	3
Anatomy and Clinics, 160, 161	3	3
Histology, 162	2	2
Physiology, 164	3	----
Materia Medica, 163	----	3
Drill, 190	3	3
Totals	23	23

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Chemistry, 176	3	3
Zoology, 178	0	3
Physiology, 174	3	3
Animal Husbandry, 181	3	0
Anatomy and Clinics, 170, 171	3	3
Pathology, 172	2	2
Pharmacy, 173	3	0
Diagnosis, 175	0	3
Animal Husbandry, 170, 180	3	3
Drill, 190	3	3
Totals	23	23

Subjects of Instruction.

160. Veterinary Anatomy.—This subject will deal with the study of the skeleton, including bones and joints, and of muscles and digestive organs. A complete dissection of the muscles of the horse will be made. Three periods. Required of First-year men in Veterinary Medicine. Doctor Handley.

161. Clinics.—An essential part of the training of students in comparative medicine consists in seeing for himself animals suffering with the various diseases discussed in the classroom. To this end abundant clinic material is available in the veterinary hospitals in Raleigh. Clinic periods will be used for dissection from November to March. Three periods. Required of First-year men in Veterinary Medicine. Doctors Roberts, Koonce and Handley.

162. Histology.—A microscopical study of the tissues of the body, treating of the cell as the unit of structure, and of its functions; also of tissues, their classification and their relation to the structure of the organs. From dissection, clinics, and proximity to slaughter-houses, abundance of histological material of various animals is received. Two periods. Required of First-year men in Veterinary Medicine. Doctor Handley.

163. Materia Medica.—A study of the drugs used in comparative medicine will consist of their classification, composition, physiolog-

ical actions, and doses. Three periods, second term. Required of First-year men in Veterinary Medicine. Professor ROBERTS.

164. Physiology.—This study will include a comparative study of the bodily functions of man and the domestic animals. The subject will be covered by lectures and recitations, demonstrations and laboratory exercises. Three periods, first term. Required of First-year men in Veterinary Medicine. Doctor HANDLEY.

165. Elementary Botany.—Recitation, laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed plants. The student's knowledge is made his own through laboratory work and simple independent investigations. Three periods. Required of First-year men in Veterinary Medicine. Professor FULTON, Mr. YOUNG.

166. Breeds of Live Stock.—A study of the origin, history, characteristics, adaptability, and popularity of the breeds of live stock. Every opportunity will be taken advantage of to teach the student the merits of the various breeds, and, when possible, classes of the breeds will be judged. Three periods, second term. Required of First-year men in Veterinary Medicine. Professor MCNUTT, Mr. SANBORN.

167. Agriculture.—Elementary and popular lectures introductory to the subject of Agriculture in its broad sense. The simpler properties of soils; tillage, fertilizers, conservation of fertility; seed selection; crops of North Carolina, rotation, etc., will be briefly considered by lecture and practical demonstration in the laboratory and in the field. Three periods, first term. Required of First-year men in Veterinary Medicine. Professor NEWMAN.

168. Composition and Rhetoric.—After a review of grammatical principles, especial attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Three periods. Required of First year men in Veterinary Medicine. Mr. PRATT, Mr. FARRELL.

169. Inorganic Chemistry.—Brownlee's *First Principles of Chemistry.* The Common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Laboratory work accompanies the classroom

work. Three periods. Required of First-year men in Veterinary Medicine. Professor WITHERS, Doctor WILLIAMS, Mr. FETZER.

170. Veterinary Anatomy.—A continuation of course 160. A study of the respiratory, circulatory, and nervous systems will be made, with complete dissection of each in the horse. Three periods. Required of Second-year men in Veterinary Medicine. Doctor ROBERTS.

171. Clinics.—These will be given as in the year previous and will give the student opportunity of putting into practice the information he has gained from the study of clinical diagnosis. In connection with the clinics, autopsies are frequently held, giving the students excellent opportunities to observe changes in body structure resulting from disease. Clinic periods will be used for dissection from November to March. Three periods. Required of Second-year men in Veterinary Medicine. Doctors ROBERTS, KOONCE, HANDLEY.

172. Pathology and Bacteriology.—A large number of specimens of diseased tissue already present in the museum and opportunity for collecting others from clinics and abattoirs insure plenty of material to demonstrate the various macroscopical and microscopical changes in organs and tissues due to disease. Especial attention is paid to the isolation and study of pathogenic bacteria from the various organs of diseased animals. Two periods. Required of Second-year men in Veterinary Medicine. Doctor HANDLEY.

173. Materia Medica and Pharmacy.—Course 163 will be continued with prescription writing and laboratory work in the preparation, compounding and dispensing of medicines. Three periods, first term. Required of Second-year men in Veterinary Medicine. Professor ROBERTS.

174. Veterinary Physiology.—A comparative study of the bodily functions of the various domestic animals is made, with special reference to digestion, respiration, circulation, and secretion. Three periods. Required of Second-year men in Veterinary Medicine. Professor ROBERTS, Doctor HANDLEY.

175. Clinical Diagnosis—This subject is taught for the purpose of studying the methods for the examination of animals to detect and diagnose the various diseases affecting them. Three periods, second term. Required of Second-year men in Veterinary Medicine. Professor ROBERTS.

176. Organic Chemistry.—Lectures and laboratory work. Moore's *Outlines of Organic Chemistry.* Three periods. Required of Second-year men in Veterinary Medicine. Professor WITHERS.

178. Zoology.—An elementary study of all forms of animal life—regarding their general structure and classification, with particular

reference to type examples of the principal groups of some economic importance—is given by text-book, laboratory work, and supplementary lectures. The first term's work is devoted to invertebrates, but with only a brief study of the true insects. The second term covers vertebrate animals. This course is planned to give the student a general knowledge of the animal kingdom and to lay a foundation for the more special subjects that are to follow. Three periods, second term. Required of Second-year men in Veterinary Medicine. Associate Professor METCALF.

179. Stock Feeding.—A study of the composition of feeds and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles so that he can compound suitable rations for the different classes of live stock. Especial emphasis will be laid upon practical problems in feeding. Three periods, first term. Required of Second-year men in Veterinary Medicine. Text-book, Henry's *Feeds and Feeding.* Professor MCNUTT.

180. Live-stock Judging.—A study of the score-card and its use. A comparison of the score-card for the various breeds, and practical scoring. Methods and rules in judging the various classes of live stock. In practical judging the student will be required to give oral or written reasons to sustain his placing of the animals. Three periods, second term. Required of Second-year men in Veterinary Medicine. Professor MCNUTT.

181. Dairying.—Text-book and lecture course covering the fundamental principles of modern dairying. The laboratory work consists of practice in the use of modern dairy equipment. Each student is required to become familiar with the construction, care, and operation of the leading makes of cream separators. Proficiency is required of the student in testing and standardizing milk and cream, and in cream-ripening, churning, working, packing, and scoring butter. Three periods, first term. Required of Second-year men in Veterinary Medicine. Mr. SALISBURY.

190. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week for the first and second terms. Two hours a week required of all classes. Lieutenant SPURGIN. Cadet Officers of the Battalion.

SHORT COURSES IN AGRICULTURE.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following short courses are offered. None of these courses, of course, lead to graduation, and they are not, in any sense, intended as preparatory courses to the regular four-year-classes. They are designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen spheres of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take these shorter courses will be carefully drilled in the handicraft and mechanism of their art, and in the application of elementary science to the farm, dairy, garden, and orchard.

1 (c). TWO-YEAR COURSE IN AGRICULTURE.

This course offers, in addition to the purely agricultural branches, introductory and cultural subjects, and thus enables the student to secure not only all the technical and practical work of the One-year Course, but Physiography, Physics, English, and Mathematics, in addition, and all the better prepares young men to become farmers, farm managers, and teachers of agriculture and allied branches in the public schools. A description of the equipment will be found on page 49 and following pages.

TWO-YEAR COURSE.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	2	2
Physiology and Hygiene	2	0
Physiography	0	2
Plant Culture	0	2
Physics	2	2
Carpentry	2	0
Mathematics	5	5
English	5	5
Drill	3	3
Totals	21	21

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Soils and Fertilizers	0	3
Animal Husbandry and Dairying	3	6
Veterinary Science	3	0
Poultry	3	0
Horticulture	3	3
Botany and Plant Diseases	3	0
English	3	3
Entomology	0	3
Drill	3	3
Totals	24	24

Subjects of Instruction.

Agriculture (Two-year Course); First Year.—A broad elementary introduction to the study of Agriculture, including the more important field crops of the State. The history, classification, adaptation, culture, harvesting, marketing, and uses of corn and small grain. Two periods. Mr. Hodson.

Second Year.—Cotton, legumes, hay and forage plants, seeds and seed selection; farm equipment, farm management. Three periods. Professor Newman, Mr. Hodson.

Physiography.—A study of the natural agencies affecting the earth's surface; soil, water, air, and temperature, and their effect upon plants and animals. Two periods, second term. Required of first-year students. Professor Sherwin.

Soils; Second Year.—This will include a stduy of the soils of the State; their formation and classification into agricultural types; their physical properties; relation to moisture and air supply; best methods of conserving and regulating the soil moisture; principles and practice of drainage. The effect of different soil and crop treatments, such as rotation, cultivation, and fertilization, will be studied. Considerable attention will be given to humus, farm manures, and green manures, and to the use and home-mixing of fertilizers, with special reference to the time and methods of using. Three periods, second term. Professor Sherwin.

SHORT COURSES.

Two-Year Course.

Principles of Plant Culture; First Year.—A course in which the functions of various parts of plants; the activities engendered by heat, cold, moisture and light; and the effect of soil and climate upon the growth of plants are considered. The propagation, planting and training of plants are also included. Practice work consists in laboratory and field exercises demonstrating the facts studied. Two periods, second term; recitations one hour; practice, two hours per week. Mr. STODDARD.

Fruit Culture; Second Year.—A course in practical fruit growing as applied to the different sections of the State. The principal fruits are treated as to location, sites, soils, choice of varieties, best method of propagation, preparation of the land, laying out the orchard, its planting and training, spraying, fertilization, management, and the harvesting, storing and marketing of the fruit. Three periods, first term. Mr. STODDARD.

Vegetable Gardening; Second Year.—This course treats of the growing of vegetables for home use, the culture of the principal "truck" crops; and the forcing of vegetables under glass. Practice includes the work of seed sowing, transplanting, and culture of the leading vegetable crops, both under glass and in the field. Each student is required to plan, plant and manage a definite plot assigned to him for the purpose of applying the knowledge gained in the classroom. Three periods, second term. Mr. STODDARD.

One Year Course.

Fruit Culture.—A course in practical fruit growing, as applied to the different sections of the State. The principal fruits are treated as to location, sites, soils, choice of varieties, best method of propagation, preparation of the land, laying out the orchard, its planting and training, spraying, fertilization, management, and the harvesting, storing and marketing of the fruit. Three periods, first term. Mr. STODDARD.

Vegetable Gardening.—This course treats of the growing of vegetables for home use, the culture of the principal "truck" crops; and the forcing of vegetables under glass. Practice includes the work of seed sowing, transplanting, and culture of the leading vegetable crops, both under glass and in the field. Each student is required to plan, plant and manage a definite plot assigned to him for the purpose of applying the knowledge gained in the classroom. Three periods, second term. Mr. STODDARD.

Botany and Plant Diseases.—The structure of seed plants is studied and the general principles of nutrition, growth, reproduction, are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking field, orchard, and garden crops; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Second year. Three periods, first term, Professor FULTON.

Animal Husbandry.—Study of breeds, judging and management of live stock, animal breeding, and stock feeding. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Second year. Three periods, first and second terms. Professor MCNUTT and Mr. SALISBURY.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term. Mr. SALISBURY.

Poultry Husbandry.—Classification and study of the breeds of domestic poultry; breeding, feeding, and management; construction and location of poultry houses; production and marketing of eggs; production, killing, and marketing of poultry; capons and caponizing; incubation and brooding. Second year. Three periods, first term. Mr. TAYLOR.

Physiology and Hygiene, First Year.—The principles of physiology and hygiene are essential to the rational feeding and care of the human body, as well as those of animals. Lectures, recitations and demonstrations will be used in covering this subject in an elementary way. Two periods, first term. Doctor HANDLEY.

Veterinary Science, Second Year.—The lectures on this subject treat of elementary veterinary anatomy, the care of live stock to prevent diseases, and the treatment of some of the most common diseases. Three periods, first term. Doctor ROBERTS, Doctor KOONCE.

Entomology.—This is a short course in which the more noxious insects are studied, with special reference to methods of preventing

their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, second term. Associate Professor METCALF.

Physics.—Properties of matter, fundamental units, British and metric standard measures, mechanics, liquids, gases, heat, introduction to light and sound. First year. Two periods. Assistant Professor MCINTYRE, Mr. MCDOWELL.

Algebra.—Wells' *New Higher Algebra.* A thorough treatment of the fundamental conceptions and operations of Elementary Algebra, embracing factoring, fractions, simple equations, simultaneous equations in two or more unknowns, problem solving, involution, evolution, theory of exponents, and radicals. First term, five periods; and second term to March 15, five periods. Mr. HARRELSON, Mr. BLACKBURN, Mr. HALES.

Plane Geometry.—This course begins the subject and completes three books, special attention being given to original exercises. Five periods, March 15, to end of second term. Mr. HARRELSON, Mr. BLACKBURN, Mr. HALES.

English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. First year. Three periods. Mr. PRATT, Mr. FARRELL.

Composition and Rhetoric.—After a review of grammatical principles, especial attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Second year. Five periods. Mr. PRATT, Mr. FARRELL.

Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. First year, two periods. Mr. WHEELER.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Lieutenant SPURGIN and Cadet Officers of the Battalion.

I (d). ONE-YEAR COURSE IN AGRICULTURE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Soils and Fertilizers	0	3
Animal Husbandry and Dairying	3	6
Veterinary Science	3	0
Poultry	3	0
Horticulture	3	3
Plant Life	3	0
English	3	3
Carpentry	1	1
Entomology	0	3
Drill	3	3
Totals	25	25

Subjects of Instruction.

Agriculture.—The course in Elementary Agriculture will consist of lectures and recitations on crops, farm equipment, and farm machinery. One period per week will be devoted to practical exercises, including the identification and habit of growth of farm crops and the drawing of plans for farms and farm buildings. The work will be made practical and will be suited to the needs of the student. Three periods. Professor Newman, Mr. Hodson.

Soils and Fertilizers.—This will include the study of the soils of the State, their formation and classification into agricultural types; their physical properties, relations to moisture and air supply; best methods of conserving and regulating the soil moistures; principles and practice of drainage; effect of different soil and crop treatments, such as rotation, cultivation, and fertilization. Considerable attention will be given to humus, farm manures and green manures, and the use and home-mixing of fertilizers, with special reference to the time and methods of using and the best mixtures for the different types of soil. Three periods, second term. Professor Sherwin.

Animal Husbandry.—Study of breeds, judging and management of live stock, animal breeding, and stock judging. There will be

lectures on all the above subjects, supplemented by practical work as far as possible. Three periods, first and second terms. Professor McNUTT and Mr. SALISBURY.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term. Mr. SALISBURY.

Veterinary Science.—The lectures on this subject treat of elementary veterinary anatomy and physiology, the care of live stock to prevent diseases, and the treatment of some of the most common diseases. Three periods, first term. Doctor ROBERTS, Doctor KOONCE.

Poultry Husbandry.—Classification and study of the breeds of domestic poultry; breeding, feeding, and management; construction and location of poultry houses; production and marketing of eggs; production, killing, and marketing of poultry; capons and caponizing; incubation and brooding. Three periods, first term. Mr. TAYLOR.

Fruit Culture.—This course treats of fruit growing as applied to the different sections of the State and the possibilities embodied in its further development. A text-book on the general subject of fruit culture is supplemented by lectures on the leading fruits, dealing with the kind of soil for fruits and its preparation, laying out the orchard, varieties, methods of propagation, planting, cultivation, fertilizing, pruning, harvesting, and marketing. Practical exercises are given in laboratory, orchards, and vineyards, which include budding, grafting, top-grafting; making of cuttings; pruning of fruit and ornamental trees; fruit bud studies, planting and transplanting; identification of varieties; packing; and handling of nursery stock. Three periods, first term. Mr. STODDARD.

Vegetable Gardening.—This course treats of the trucking industry of the State, and the growing of vegetables for home use. A text-book is used, supplemented by lectures on the growing, handling, and the marketing of the leading vegetables. Mr. STODDARD.

Practical exercises are given in the laboratory and field which

include germinative tests of seeds; seed sowing; methods of transplanting and culture; manipulation of garden tools; construction and management of hotbeds and cold-frames, and protection of plants from insects. Three periods, second term. Mr. STODDARD.

Plant Life.—The structure of seed plants is studied and the general principles of nutrition, growth, reproduction, are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking farm crops, fruit trees, etc.; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Three periods, first term. Professor FULTON.

Entomology.—This is a short course, in which the more noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, second term. Associate Professor METCALF.

Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. Two hours, first and second terms. Mr. WHEELER.

English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. Three hours a week. Required of one-year students. Mr. PRATT, Mr. FARRELL.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may elect either the drill or three hours extra in some other subject in its place. Lieutenant SPURGIN and Cadet Officers of the Battalion.

WINTER SHORT COURSE IN AGRICULTURE.*

FOUR-WEEKS COURSE IN GENERAL AGRICULTURE.

Begins January 11, and ends February 6, 1915.

The Winter Course in Agriculture is a practical course in farming given by practical men for practical farmers. It is open to all who are engaged in or interested in farming, and is designed to aid the man who wishes to farm in a modern and business way, who wants larger and better returns for his labor and who wants to make a better and more comfortable home on his farm. It is designed to aid farmers who wish:

To manage their soils so that there will be a gain and not a loss in soil fertility;

To use fertilizer and manures with less expense and with better results;

To save soil moisture and plant food;

To save soil from washing away;

To rotate crops so as to add to crop yields and increase the fertility of the soil;

To select the best types and best individual dairy and beef cattle and to feed and manage them to the best advantage;

To judge all kinds of cattle, horses, hogs, sheep and poultry;

To breed live-stock so that each generation may be improved;

To produce and feed balanced rations for the best economy and best results;

To fight insect enemies intelligently and fungus and bacterial diseases with success;

To prevent diseases in live-stock;

To care for live stock so as to keep them healthy and to get the most profitable return from their work and products;

To hatch, feed, and care for poultry;

To breed, graft and otherwise propagate plants;

To know when and how to spray;

To grow fruits and vegetables successfully.

These and other things will be taught simply, practically and as thoroughly as the time will permit.

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*Details will be announced in the Winter Course Circular, which is published in November of each year.

EQUIPMENT.

So far as it can be used, the entire agricultural equipment of the College is put at the service of the members of the Winter Course class. The laboratory and classroom equipment, the several large barns with their equipment of live stock, machines, implements, tools, appliances and silos; the dairy, with its modern equipment; the horticultural plant; the poultry houses and yards; the libraries are all used to make the course both interesting and profitable.

DOES SUCH A COURSE PAY?

All those who have taken this course unite in saying that it has paid them many fold. A thoughtful man has his eyes opened to see so many ways of improving his methods, his soil, his animals, his crops, his orchard, his truck farm and his poultry that such a training as is given in the Winter Course can not fail to bring, not only a handsome economic return, but also a rich return in the greater pleasure given to his work.

EXPENSES.

No tuition is charged for the Winter Course. The College can not offer rooms to students entering this course but will furnish meals at the dining hall at $2.75 per week. Rooms may be rented either in West Raleigh or in Raleigh, at from $2.50 per week up.

ADMISSION.

No examinations are required for entering the Winter Course and any person over eighteen years of age may enter with full privileges. The greater part of the instruction consists of lectures and laboratory exercises and the full time of the students is provided for. Some of the evenings will be devoted to popular lectures and some to student meetings. The regular work of the Winter Course begins January 9 at 8.15 a. m., and all students should arrive the day before so as to arrange for board and room.

For further information write the

PROFESSOR OF AGRICULTURE,
West Raleigh, N. C.

OUTLINE OF FOUR-WEEKS COURSES.

GENERAL AGRICULTURE.

Professor Newman and Mr. Hodson.

Farm Crops.—First a general review of the farm crop situation in the several agricultural divisions of the State will be discussed. Following this the legumes, small grains and cover crops will be considered from the viewpoints of profitable production of the crops themselves, and their relation to live stock and the conservation of soil fertility. Forage, hay and pasture crops will be studied and discussed. Rotations for corn, cotton, small grain, and tobacco will be planned and discussed and suggestions made for at least a partial reorganization of the present farm cropping systems for increasing the farmer's profits, economizing labor and conserving fertility.

SOILS AND FERTILIZERS.

Professor Sherwin.

This will include a study of the soils of the State; their formation and classification into agricultural types; their physical properties; relation to moisture and air supply; best methods of conserving and regulating the soil moisture; principles and practices of drainage.

The effect of different soil and crop treatments, such as rotation, cultivation, and fertilization, will be studied. Considerable attention will be given to humus, farm manures and green manures, and to the use and home-mixing of commercial fertilizers, with special reference to the time and methods of using and the best mixtures for special crops on different types of soil.

ANIMAL HUSBANDRY.

Professor McNutt and Mr. Salisbury.

Breeds of Live-Stock.—Lectures on this subject will treat of characteristics of the different breeds of live-stock.

Stock Judging.—This work will be made practical and it will be done in the stock judging room where the students will be taught the use of the score card and the points to be considered in the selection of good animals.

Stock Feeding.—Lectures on this subject will treat of the composition and digestibility of the various home-grown and commercial feeds; methods of calculating rations and suggestions as to the most economical feeds to use.

DISEASES OF LIVE-STOCK.

Doctors Roberts and Handley.

Lectures will first briefly cover elementary anatomy, physiology and hygiene of domestic animals. These lectures will include some comparisons between man and domestic animals. Mounted skeletons of the horse, cow, and of man will be used to assist in making this part of the anatomy more readily understood.

This course will also cover the care and management of live-stock to prevent disease, and the nature, causes and treatment of the more common diseases and injuries. Special emphasis will be laid upon the means of preventing disease. During the course there will be a practical demonstration of the tuberculin test upon the dairy herd.

AGRICULTURAL BOTANY.

Professor Fulton.

This course will consist of ten lectures. Five of them will treat of the fundamental physiological processes in plants relating to nutrition, growth and reproduction. The remaining five will treat in a practical way of the important fungous diseases of field, garden and orchard crops. Ample illustrative material will be used.

SOILS AND DRAINAGE.

Professor Sherwin.

Forces in the formation of soil; causes of variation in the natural fertility; effect of artificial methods of soil management; influence of cultural methods, fertilization, soil moisture, humus, and lime; soils best adapted to different kinds of farming, to different fertilizers, and to different crops; drainage of farm lands.

Special soils of North Carolina will be given special consideration.

ENTOMOLOGY.

Professor Metcalf.

The aim of this course will be to teach the farmer to recognize his insect friends and enemies. We pay a much greater tax to insects each year than we do to the State and local government in taxes for several years, and yet there are many farmers who know practically nothing about insects. The farmer should know something about the lives of these interesting animals and how to control the injurious forms.

The course will be illustrated by specimens, charts, and photographs in order to familiarize the farmer with the principal insects attacking farm crops and fruit trees.

POULTRY RAISING.

Mr. Taylor.

Since ninety-five per cent of the poultry produced in this country is grown on the farms, poultry culture in this course will be treated from the farmer's standpoint.

In this connection attention is called to the great and growing demand for poultry products. But a few years ago eggs sold at ten cents per dozen, now forty and fifty cents is not unusual at certain times of the year. Formerly young chickens brought from ten to twenty-five cents each and old hens twenty-five cents. Now thirty-five cents is a low price on the local market for young stock and old hens bring from seventy-five cents to a dollar.

The breeds and varieties best suited for the farmer, both for eggs and meat, will have first consideration.

The houses and location of same with reference to convenience and health of the flock will also be discussed.

As the annual loss from bad and improperly handled eggs for market for the United States is $25,000,000, of which North Carolina bears more than her share, particular stress will be laid on the production of good marketable eggs.

The reasons why poultry undrawn, dry picked keeps better and commands a higher price in the best markets of the country will be demonstrated.

Caponizing, one of the easiest operations learned, will have special attention. By this operation thousands of dollars can be saved to the State, increasing the quality and quantity of flesh on the thousands of surplus cockerels now marketed yearly.

Incubating and brooding, both natural and artificial, will have thorough treatment.

During the past year the Experiment Station has been testing the Petulama method of brooding chicks in lots of 500 to 1,000, and will this year test several heaters designed for this purpose.

The College and Station flocks consist of ten of the most popular and useful varieties of poultry, embracing both the general purpose and egg breed of fowls. They are kept in several types of houses so that the different styles can be seen and compared.

The incubator cellar contains fifteen machines of several different standard makes and the students have the opportunity of becoming familiar with the best.

To those who may wish to specialize in poultry culture as far as time will admit, opportunity will be given to become familiar with the details of running a poultry plant by being given an incubator and brooder, a pen of fowls to care for, etc.

HORTICULTURE.

Professor Pillsbury and Mr. Stoddard.

The course in Horticulture is designed to meet the demand for practical instruction along the lines of propagation, fruit growing, and vegetable gardening. Especial consideration will be given to the application of principles and methods to North Carolina conditions.

Plant Propagation is to be presented by means of lectures, demonstrations, and actual practice. The methods used in multiplying plants, such as seed sowing, separation and division, the making of cuttings and layers, and budding and grafting, will be treated in turn.

Fruit Growing is to be considered both from the standpoint of the farmer and that of the fruit grower. It is to be treated by means of lectures on the principal fruit crops, and demonstrations and practice in the selection of sites and soils, the laying out of orchards, the planting, pruning and training of trees, spraying, and the marketing of the fruit.

Vegetable Gardening will treat of the culture of the leading vegetables for both market and home use. Every farm should be supplied with a home garden, and the consideration of this branch of Horticulture is vital to the success of the farmers of the State. Lectures upon the principal crops will be supplemented by demonstrations and practice in the selection of sites and soils, formation of garden plans, in the construction and use of cold-frames and hot-beds, starting early vegetables, transplanting, cultivation, and marketing.

Equipment.—The Department of Horticulture has under its management about twenty-five or thirty acres of land which is devoted to the culture of all the standard tree, vine, and small fruits and vegetables which it is possible to grow successfully in this climate, as well as other varieties maintained for instructional purposes.

In the fruit plantation, which is very complete, are to be found standard sorts of apples, pears, peaches, plums, cherries, quinces, persimmons, pecans, figs, muscadine grapes, fox grapes, raspberries, blackberries, dewberries, and strawberries. There is also a nursery in which both fruit and ornamental plants are grown. This is es-

pecially valuable in providing material and opportunity for carrying on various methods of plant propagation, as well as in furnishing stock of all kinds for planting about the grounds.

The area devoted to vegetable gardening is quite extensive and is conducted in a large measure upon a commercial basis. This is possible because of an arrangement with the Department whereby the College dining-room is supplied with fresh vegetables throughout the year. Here all the leading vegetables are grown in season according to the best practice in rotation, fertilization, tillage and harvesting, and the student is provided with ample materials for study and practice.

The Horticultural grounds are also worthy of study as to the design as a whole, and provide an example of how a home may be made attractive by means of lawn, trees, shrubs, and vines.

AGRICULTURAL EXTENSION.

The Department of Agricultural Extension was organized July 1, 1909. This department was and is made possible by the help of the General Education Board in the United States. The work is closely correlated with that of the United States Department of Agriculture. The object of this department is to link the scientific agricultural work of the College and Station to the practical work on the farms of the State. Each year the trained scientific workers of America add to the fund of information needed by progressive farmers. The object of this department is to carry this information to the busy men on the farm, and to help in the teaching of farm science in our schools. This is done by addresses to farmers, by farm schools held in different sections, holding seed-corn days, organizing boys' corn clubs, addressing County Teachers' Associations in the interest of agricultural education in the public schools, and in such other ways as time and occasion may permit. Professor T. E. Browne.

II. ENGINEERING COURSES.

a. Four-year Course in Civil Engineering.
b. Four-year Course in Mechanical Engineering.
c. Two-year Course in Mechanic Arts.
d. Four-year Course in Electrical Engineering.
e. Four-year Course in Chemistry.

The Engineering courses give a thorough grounding in such fundamental sciences as Mathematics, Physics, and Chemistry, and thorough drill in the application of the principles thus learned to engineering problems. The student is given practice in the use of engineering instruments and methods, and is encouraged to rely upon his own resources in the solution of problems. Though the courses are primarily technical and practical, they include subjects of general culture throughout all four years.

The Freshman years of all the Engineering Courses are identical and include a great deal of practice. The student in the different shops learns the use of tools and the handling and manipulation of materials of construction. Instruction is given in working wood and iron. In the Sophomore year this work is continued in the pattern-making shop and in the foundry. Also in the Physical laboratory much attention is paid to the practical value of such instruction. Here the student is taught the science of measurement and is trained to observe and work accurately. During these two years he is also given a thorough training in Mechanical Drafting, skill in which is essential in all lines of engineering work.

Differentiation of the different engineering courses begins in the Sophomore year. The practical work here, in the shop, in the field or in the laboratory, directs the student's attention to the specific phases of that branch of the profession he is to follow. In the Junior year the study of engineering methods is begun and is continued more fully in the Senior year.

Upon the satisfactory completion of these courses the degree of Bachelor of Engineering is conferred. The advanced degrees of Civil Engineer, Electrical Engineer, and Mechanical Engineer may also be conferred upon graduates of three years standing who have had responsible charge of important work, upon complying with the College requirements (see page 160).

More detailed descriptions of the different courses follow.

COURSE IN CIVIL ENGINEERING.

The aim of the course in Civil Engineering is to give such training as will enable our young men to take an active part in the work of advancing our State along material lines—developing its water-power, building railroads and public highways, constructing water supply and sewerage systems for our towns, etc. The student is given a large amount of practical work in the field and draughting-room, and acquires a fair degree of efficiency in the use of the various surveying instruments, and in draughting. At the same time it is recognized that a successful engineer requires a well-trained mind—one that reasons logically, accurately, and quickly. Therefore a thorough course is given in all those branches of applied mathematics which are involved in the solution of engineering problems.

The aim has been to make this pre-eminently a technical course; but subjects of general culture are included in order to give the student a broader mental training and better preparation for social and business life.

Civil Engineering Equipment.

There is a complete equipment of all instruments necessary to civil engineering field work. The classrooms, drawing-rooms, and laboratories are in Winston Hall.

II (a). The Four-year Course in Civil Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.*	
	1st Term.	2d Term.
Mechanical Drawing, 230†	2	2
Woodwork, 235	2	2
Forge Work, 236	--	2
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Physics, 280	4	4
Physical Laboratory, 282	1	1
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Architecture, 220	2	--
Architectural Drawing, 221	2	2
Advanced Algebra, 343	5	--
Trigonometry, 344		
Analytical Geometry, 345	--	5
Descriptive Geometry, 200	--	2
Physics, 281	2	2
Physical Laboratory, 283	1	1
Inorganic Chemistry, 300	3	3
Inorganic Chemistry (laboratory), 301	2	2
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Drill, 390	3	3
Military Tactics, 391	1	1
Totals	24	24

*The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Road Building, 212	1	1
Surveying, 202, 206	2	2
Surveying (field work), 207	2	2
Construction, 205	2	--
Topographical Drawing, 203	2	2
Graphic Statics, 201	--	2
Mechanics, 204	3	3
Analytical Geometry, 345	5	2
Calculus, 346	--	3-5
English Literature, 364	3	3
Military Drill, 390	3	3
Modern Languages (elective), 370, 372	3	3
Totals	23	23

Senior Year.

Mechanics of Materials, 215	3	--
Roofs and Bridges, 209	3	--
Bridge Design, 210	--	3
Municipal Engineering, 211	--	2
Surveying (field work), 208	2	--
Hydraulics, 216	--	2
Calculus, 346	3	--
Railroad Engineering, 206	3	3
Reinforced Concrete, 214	--	2
Astronomy, 213	--	2
Laboratory, 217	--	2
Mechanics, 204	2	--
Journals, 365	2	--
Classics, 366	--	2
Economics, 367	1	1
Elect one of the following:		
Military Drill, 390	3	3
Modern Languages, 370, 372	3	3
Totals	22	22

Subjects of Instruction.

200. Descriptive Geometry, Stereotomy.—Text-book, lectures, problems, and completed drawings. Two periods, second term. Required of Sophomores in Civil Engineering. Mr. POOLE.

201. Graphic Statics.—Determination of stresses in frame structures by graphical methods. Lectures and original problems. Two periods, second term. Required of Juniors in Civil Engineering. Professor MANN.

202. Surveying.—Land surveying, leveling, elements of triangulation, topographical surveying, road location. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN.

203. Topographical Drawing.—Conventional signs, computations, forms of field notes, methods of platting, completed map from field notes. Two periods. Required of Juniors in Civil Engineering. Professor MANN.

204. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of motion, constraining and accelerating forces, dynamics of a rigid body, momentum and impact, work, power, friction, application of principles to various engineering problems. Three periods. Required of Juniors in Civil Engineering. Two periods, first term. Required of Seniors. Professor RIDDICK, Professor MANN.

205. Construction.—Masonry, foundations, railroads, dams, retaining walls, arches, etc. Baker's *Masonry Construction.* Lectures. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN.

206. Railroad Engineering.—Reconnaisance, preliminary and location surveys, cross-sections, compound curves, spirals, etc. Searles' *Field Engineering.* Two periods, second term. Required of Juniors in Civil Engineering. Three periods. Required of Seniors in Civil Engineering. Professor MANN.

207. Surveying.—Field work. Use of instruments, compass, level, transit, and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes, and platting. Two periods. Required of Juniors in Civil Engineering. Professor MANN, Mr. POOLE, Mr. TUCKER.

208. Surveying.—Field work. Triangulation and topography, use of sextant and plane table, surveys for sewers, waterworks, etc. Two periods, first term. Required of Seniors in Civil Engineering. Professor MANN, Mr. POOLE, Mr. TUCKER.

209. Roofs and Bridges.—Determination of stresses in roof and bridge trusses by the analytical method. Merriman's *Roofs and*

Bridges. Original problems. Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

210. Bridge Design.—Calculation of stresses, design, specifications, and estimate of cost of a wooden rooftruss and a steel railway bridge. Three periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

211. Municipal Engineering.—Text-books, lectures. Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

212. Road Building.—Text-book on construction of roads, streets and pavements. Lectures on practical roadmaking in North Carolina. One period. Reqired of Juniors in Civil Engineering. Professor RIDDICK.

213. Astronomy.—Determination of azimuth, latitude and longitude, and time. Comstock's *Astronomy for Civil Engineers.* Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

214. Reinforced Concrete.—Turneaure & Maurer's *General Theory of Concrete and Steel Construction.* Problems in beams, columns, retaining walls, etc. Two periods, second terms. Required of Seniors in Civil Engineering. Professor MANN.

215. Mechanics of Materials.—Study of stresses in beams, columns, shafts, etc. Merriman's *Mechanics of Materials.* Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

216. Hydraulics.—Methods of measuring flow of streams, laws governing flow in pipes and conduits, determination of water-power in streams, testing of hydraulic motors. Text-book, Merriman's *Hydraulics.* Two periods, second term. Required of Seniors in Civil Engineering. Two periods, second term. Required of Seniors in Mechanical and Electrical Engineering. Professor RIDDICK.

217. Laboratory.—Tests of cement and other materials. Hydraulic measurements. Two periods, second term. Required of Seniors in Civil Engineering. Professor MANN, Mr. POOLE.

ARCHITECTURE.

220. Architecture.—Building materials, methods of constructing buildings, plans, specifications, bill of materials, estimate of cost, design of buildings. Lectures. Two periods, first term. Required of Sophomores in Civil Engineering. Mr. POOLE.

221. Architectural Drawing.—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Two periods. Required of Sophomores in Civil Engineering. Mr. POOLE.

FOUR-YEAR COURSE IN MECHANICAL ENGINEERING.

The regular four-year course in Mechanical Engineering offers a training in the fundamental principles of design, construction, manufacture, and operation of all classes of standard and special machinery, and their economic application to railroads, steamships, mills, shops, factories, and power plants, as well as in the technical and executive management of the manufacturing and transportation industries. To this end the course of instruction is as broad as is possible to give in a technical school.

The course begins with a thorough training in mathematics, physics, and chemistry as a foundation for the appropriate technical work which is developed along several parallel lines. Applications of these fundamental sciences to the physical properties of the materials of construction, especially the metals and their practical manipulation, lead through the courses in mechanics, resistance of materials, shop processes, the materials-testing laboratory, drafting and kinematics, to the principles of design, which are fixed by application to the design of machinery for the execution of any kind of process in which machinery is either absolutely essential or more economical than corresponding hand execution of the same process. The principles underlying the performance of machinery are developed by courses in thermodynamics, mechanics, and hydraulics, with experimental laboratory demonstrations. The instruction in the performance, design, and manufacture of machine and power units in the classroom and laboratory, supplemented by visits to power plants and factories, is the basis of the work on the design of plants and mills.

To success in any one of these particular branches or phases of this profession a thorough technical training is absolutely indispensable, for it supplies the broad, general foundation, which must in its turn be supplemented by practical experience and by contact with the special line of work chosen.

II (b). The Four-year Course in Mechanical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mechanical Drawing, 230	2	2
Woodwork, 235	2	2
Forge Work, 236	--	2
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Physics, 280	4	4
Physical Laboratory, 282	1	1
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Descriptive Geometry, 231	--	2
Mechanical Drawing, 232	--	2
Foundry, 237	2	--
Pattern-making, 238	2	--
Advanced Algebra, 343 / Trigonometry, 344	5	
Analytical Geometry, 345	--	5
Physics, 281	2	2
Physical Laboratory, 283	1	1
Inorganic Chemistry, 300	3	3
Inorganic Chemistry (laboratory), 301	2	2
Advanced Rhetoric, 362 / Public Speaking, 363	3	3
Military Drill, 390	3	3
Military Tactics, 391	1	1
Totals	24	24

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Steam Engines and Boilers, 241	3	3
Mechanics, 250	2	2
Machine Design, 233	2	2
Machine-shop, 239	2	2
Electrical Engineering, 285	2	2
Electrical Laboratory, 290	1	1
Analytical Geometry, 345	5	2
Calculus, 346	--	3–5
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	23	23
Modern Languages (elective), 370, 372	3	3

Senior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Applied Mechanics, 251	3	--
Mechanics of Materials, 252	--	2
Machine Design, 234	3	2
Machine-shop Work, 240	2	2
Power Plants, 243	3	2
Gas Engines, 244	3	--
Industrial Engineering, 245	--	2
Heating, Ventilation, and Refrigeration, 247	--	3
Power -plant Design, 248	--	2
Steam Engineering Laboratory, 249	2	2
Calculus, 346	3	--
Hydraulics, 216	--	2
Elect three periods from the following:		
Military Drill, 390	3	3
Modern Languages, 370, 372	3	3
Journals, 365	2	--
Classics, 366	--	2
Economics, 367	1	1
Totals	22	22

MECHANICAL ENGINEERING EQUIPMENT.

Buildings.—The drawing rooms and recitation rooms are in the Mechanical Building; while the forge shop, foundry, wood shop, dry kiln, machine shop, and mechanical laboratory are in the new shop building, which has just been completed. This new building is of brick and has a floor space of 26,350 square feet. It contains the machinery from the old shops as well as many new machines. Each shop contains a demonstration lecture room of which use is made for recitation work. The Power Plant is also utilized for experimental engineering.

Drawing Rooms.—The drawing rooms are well lighted, heated and ventilated and are very spacious. They are equipped with

drawing tables, board and filing cabinets, models of valves, pumps, machine parts, etc., etc.

Forge Shop.—This is a well lighted and ventilated room of 35 by 72 feet. It is equipped with twenty double and two single forges thus accommodating forty-two students at one time. Blast is furnished from a Sturtevant blower. The shop is equipped with two emery and two buffing wheels; a Buffalo Forge Company's hand drill; a down-draft exhaust system operated by a 120-inch Sturtevant exhaust fan, for removing smoke and gases from the fires; anvils, a power hammer, and all necessary hand tools, all of which is new equipment. There is a large tool room and office; and there are raised seats for lecture work.

The Foundry.—This will accommodate about forty students at one time. The floor is 35 by 77 feet, and the equipment consists of a Northern Engineering Works 36-inch cupola, with blast by a Buffalo blower. There is also a crucible brass furnace of good size. For moulding machines the foundry is equipped with an Arcade squeezer and a Model moulding machine, both made by the Arcade Manufacturing Company, and a Pridmore mould machine made by Henry Pridmore. A Cadet core oven and all necessary tools for bench and floor work complete the equipment.

Wood shop.—This is a very large room, 50 by 118 feet, and has all the conveniences of a modern shop. It contains the following machines besides the new ones which have been added with the new building: fifteen double carpenters' benches which accommodate thirty students, and all necessary tools for each bench; thirty 12-inch turning lathes, each lathe being fully equipped with turning tools; a rip and a cut-off saw bench, foot feed with dado attachment; a 40-inch surface planer; a 12-inch and a 6-inch hand jointer or buzz planer; a universal boring machine; a 6½-inch tenoning machine with cope heads; a 6-inch sash and blind sticker; a 34-inch band saw; an iron frame self-contained jig-saw; a sharper or edge-moulding machine, with a very complete set of moulding cutters; a chain mortiser; a dove-tailing machine; a belt-sanding machine; a hollow chisel mortiser; a planer knife grinder; a 38-inch grind stone; a wood-trimmer; an adjustable miter box; a steam glue-heater, and a large assortment of screw and bar clamps, both iron and wooden. The shop also contains an up-to-date tool room.

Dry Kiln.—This is a large room underneath the wood shop, and is used for storing and drying lumber. It has a cement floor and is heated by steam pipes.

Machine Shop.—This well equipped shop is 50 by 100 feet, and contains many new machines. It has a cement floor and large win-

dows, which make it an ideal room for machine work. There are the following machines: A 16-inch Davis & Egan lathe, with 10-foot bed; a 14-inch Windsor lathe with 5-foot bed; a 14-inch Putnam lathe with 4-foot bed; a 14-inch Champion lathe with 6-foot bed; a 14-inch Flather lathe with a 6-foot bed; three 14-inch lathes with 6-foot beds (built in College shops by students), a 26-inch by 44-inch by 12-foot bed McCabe double spindle lathe; a 14-inch Champion lathe; a 12-inch Seneca Falls lathe; a 16-inch Gould & Eberhard shaper; an 18-inch Prentiss shaper; a 24-inch upright Bickford drill press; a 32-inch American drill press; a Brown & Sharpe Universal milling machine, with all attachments; a 20-inch by 5-foot Pease planer; one large and one small emery tool grinding machine; a Greenwich arbor press; an electric center grinder; a Whiton centering machine, and a twist drill grinder. The machines have full equipment of chucks, rests and tools. The benches are well provided with vises.

Mechanical Laboratory.—This room is 45 by 95 feet, and is well equipped with the necessary apparatus for performing commercial tests on the various mechanical engineering problems.

For general laboratory there are various measuring instruments, thermometers, pyrometers, steam engine indicators, planimeters, tachometers, pressure and vacuum gages, a Crosby gage tester, steam calorimeters, both throttling and separating, an Emerson fuel calorimeter for testing coal and oils, an apparatus for testing oil for flash point, burning point and viscosity, an apparatus for flue gas analysis, both indicating and recording, and apparatus rigged for making calibration tests on thermometers, indicator springs and steam gauges.

For the work in steam engineering there are the following: A 40-horsepower Skinner automatic engine, to which is connected a Wheeler surface condenser with a Blake air pump; a 25-horsepower steam engine, a 10-horsepower engine, a 10-horsepower De Laval steam turbine, and apparatus arranged for making tests on injectors, pumps, flow of fluids through orifices and nozzles. Besides the above, which are used only for experimental purposes, the College Power Plant, with a 100-horsepower Skinner automatic steam engine, a 135-horsepower De Laval steam turbine, with all auxiliaries, as well as the boiler equipment, consisting of two 200-horsepower Atlas and two 75-horsepower Babcock & Wilcox water tube boilers, are all available for tests.

For making efficiency and economy tests on gasoline and oil engines, the following equipment is available: One 11-horsepower Foos gasolene engine; one 3-horsepower International Harvester

Company gasolene engine; one 2-horsepower McVicker gasolene engine; one 3-horsepower, 2-cycle, Detroit oil engine; one 16-horsepower Ford Automobile engine; a one-horse power engine, built in shops, and a 5-horsepower De La Vergne oil engine. To this collection it is hoped to add one or two more oil engines in the near future.

For the course in testing of materials the following are available: A 50,000-pound Riehle automatic testing machine, arranged for tensional, compression and transverse tests; a 15,000-pound Olsen testing machine for small specimens, and necessary auxiliary apparatus, such as micrometers, extensometers, etc., for obtaining results of the various tests.

Subjects of Instruction.

230. Mechanical Drawing.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawings from working sketches of machine details; tracing; blueprinting; elements of descriptive geometry; cylinders; cones; prisms; intersections and development; miscellaneous problems. Two periods. Required of Freshmen in Engineering. Mr. COBURN.

Note.—Each student will be required to furnish, at his own expense, the following outfit. To insure uniformity in grade of instruments and other supplies, the department keeps for sale practically at cost, the articles named below. These may be purchased elsewhere, but must be approved by the department. Estimated cost of outfit, $12 to $15.

Text-book.
Drawing board, 22 by 32 inches.
T-square, 30 inches.
60° triangle, 9 inches, transparent.
45° triangle, 7 inches, transparent.
12-inch triangular architect's scale.
4 H pencil. H or F pencil.
Erasers for ink and pencil.
Penholder with fine points.
Pencil sharpener.

Instrument set consisting of:
6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen; 4½-inch ruling pen.

231. Descriptive Geometry.—General definitions; third angle; representation of points, lines and planes; profile plane; projected views; line and plane essentials; relations of points, lines and planes in space; intersection of lines and planes; curved surfaces; development of surfaces; plane sections of solids. During the term many practical problems are given for solution and construction. Two periods, second term. Required of Sophomores in Mechanical and Electrical Engineering. Prerequisite, Mechanical Drawing 230. Professor SATTERFIELD, Mr. BRIGGS.

232. Mechanical Drawing.—Making drawings and calculations setting forth the general principles of Descriptive Geometry. The design of cams to give specified motions and problems in elementary machine design. Two periods, second term. Required of Sophomores in Mechanical and Electrical Engineering. Prerequisites, Mechanical Drawing 230. Mr. BRIGGS.

233. Machine Design.—A study of materials used in machine construction; analysis of stresses in machine parts; design of machine parts, considering them as compression, tension, or torsion members; modification of the above to suit practice and for the sake of general appearance. Design of simple machines, such as shears, punches, air hoists, riveters, etc., all calculations to be made in standard form and handed in with the assigned problem. Two periods throughout the year. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Descriptive Geometry 231, and Mechanical Drawing 230 and 232. Assistant Professor ELLIS.

234. Machine Design.—Advanced Machine Design based on the thermal and mechanical problems involved in the design of a steam engine for power, economy and regulation. The students are given the requirements of the engine—such as speed, regulation and point of cut-off for required horsepower—and are required to make calculations for the same; draw all theoretical diagrams from the ideal indicator card to the rectified tangential pressure diagrams; valve diagrams, showing different events of valve; details of cylinder, frame, fly-wheel, governor, etc. Three periods, first term; two periods, second term. Required of Seniors in Mechanical Engineering. Prerequisites, Machine Design 233, Mechanics 250, and Heat Engines 241. Assistant Professor ELLIS.

235. Woodwork.—The use and care of the ordinary woodworking bench tools. Exercises in laying out and working from drawings, sawing, planing, and making of joints. The use and care of woodworking machines such as saws, planers, shapers, dovetailers,

tenoners, etc. Exercises in wood-turning. Work on repairs about the College. Two periods. Required of Freshmen and first-year Short Course Men. Mr. WHEELER.

236. Forge Work.—Treatment of iron and steel, the uses of the fuller, swage, punch and set hammer; drawing and upsetting; butt, scarf, and jump welding; making of forge and machine shop tools, with tempering of tool steel; exercises on power hammer. Special work on equipment and repairs about the College. Required of Freshmen and first-year Short Course Men. Two periods, recitations and exercises, second term. Mr. HURTT, Mr. NICHOLS.

237. Foundry.—Recitations and exercises in foundry work, including working condition of the sand, use and care of tools, moulding, core-making, management of cupola and crucible furnaces in iron and brass melting. Required of Sophomores in Mechanical and Electrical Engineering and second-year Short Course Men. Two periods, first term. Mr. HURTT, Mr. NICHOLS.

238. Pattern-making.—A study of pattern-making in its relation to moulding; the practical construction of patterns to prevent warping and twisting; the making of special patterns; cores and core-boxes; introducing draft, shrinkage, finish, and the appliances and usage of modern pattern work. Required of Sophomores in Mechanical and Electrical Engineering. Two periods, first term. Prerequisite, Woodwork 235. Mr. WHEELER.

239. Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling and shaper work. Two periods. Required of Juniors in Mechanical Engineering. One period. Required of Juniors in Electrical Engineering. Mr. PARK.

240. Machine-shop Work.—Making the parts of some machine, or of an engine. Making tools, such as taps and reamers. Laying out work. Working from drawings, duplicate and interchangeable parts. Working to standard gages. Two periods. Required of Seniors in Mechanical Engineering. Mr. PARK.

241. Heat Engines.—A study of elementary thermodynamics, properties of steam, calorimeters and mechanical mixtures, combustion and fuels, boilers and boiler auxiliaries, steam engines, including types and details, valve gears, and governors; layout and necessary calculations for steam-engine testing, condensers and air pumps, steam turbines, gas engines, and economy of heat engines. Three periods throughout the year. Required of Juniors in Mechanical Engineering. Two periods throughout the year. Required of Juniors in Electrical and Textile (435) Engineering.

Prerequisites, Physics 281 and Advanced Algebra 343. Professor SATTERFIELD, Mr. PARK, Mr. VAUGHAN.

243. Mechanical Engineering of Power Plants.—A critical study of steam boilers and furnaces, of boiler-room accessories, of coal and ash handling, and of piping, steam engines, steam turbines, pumps, condensers, traps, separators, etc. Special attention is paid to the conditions under which different equipment would be used, and to the selection of the apparatus, also to the cost of power, depreciation, repairs, etc. Three periods, first term; two periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

244. Gas Engines.—Thermodynamics of the gas engine, theoretical comparisons of various types of internal combustion engines. Combustion, including combining weights and volumes, heating value, air required, etc. Gas-engine fuels; solid, liquid, and gas. Gas producers, carburetors, and vaporizers. The fuel mixture, pressure, and temperature resulting from combustion. Modern types of internal combustion engines, auxiliaries, including ignition, starting apparatus, and mufflers; regulation, efficiency, and economy. Three periods, first term. Required of Seniors in Mechanical Engineering. Prerequisites, Heat Engines 241 and Mechanics 250. Mr. VAUGHAN.

245. Industrial Engineering.—A study of the origin and principles of the Industrial System; the nature and distribution of expense; labor; materials, etc. Two periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

247. Heating, Ventilation, and Refrigeration.—This subject treats of the various methods of heating, such as by open fires, hot air, steam and hot water; of the proper ventilation of all types of buildings; of methods of utilizing the waste heat from power plants for the heating of buildings; of the various types of ice-making and refrigerating machinery, and their installation, care, and management; and of the cost of heating and cooling. Three periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

248. Power Plant Design.—A study of the selection, location, and proportioning of the essential details of steam and gas power plants, such as engines, boilers, pumps, piping, condensers, feed water heaters, chimneys, etc. The course consists of the study of references, lectures on the subject, and the drawing of plans of plants showing all details. Two periods, second term. Required of Seniors in Mechanical Engineering. Prerequisite, Heat Engines 241. Assistant Professor ELLIS, Mr. VAUGHAN.

249. Steam Engineering Laboratory.—Calibration of the various instruments used in performing tests on various mechanical engineering problems. Practice in the use of calorimeters, both steam and fuel; indicators, planimeters, etc. Testing of lubricants for flash point, burning point, and viscosity. Checking the formulas used in determining the flow of fluids through orifices and nozzles. Efficiency tests of boilers, steam engines, injectors, pumps, and gasoline and oil engines. Testing of materials used in engineering construction. Two periods throughout the year. Required of Seniors in Mechanical Engineering. One period throughout the year. Required of Seniors in Electrical Engineering. Prerequisites, Heat Engines 241 and Mechanics 250. Mr. VAUGHAN, Mr. WHEELER.

250. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of impact, constraining and accelerating forces, momentum and impact, work, power, friction, application of principles to various engineering problems. Elasticity and mechanics of fluids. Preparatory to Applied Mechanics 251. Two periods throughout the year. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Physics 280, Algebra 340, and Trigonometry 344. Mr. VAUGHAN.

251. Applied Mechanics.—A study of the laws of equilibrium and motion as applied to a particle or to a rigid body; analytic treatment of stresses in structures; center of gravity, moment of inertia, energy and work, friction and dynamics of machinery. Three periods, first term. Required of Seniors in Mechanical and Electrical Engineering. Prerequisite, Mechanics 250. Assistant Professor ELLIS.

252. Mechanics of Materials.—A study of the effects of loads and forces in engineering structures by use of the stress-strain diagram. Determination of ultimate stress and elastic limit of materials, with investigation for maximum and minimum bending moment and shear. Torsion and its application to shafting, with theories as to elastic limit and failure. Two periods, second term. Required of Seniors in Mechanical and Electrical Engineering. Prerequisites, Mechanics 250 and 251. Assistant Professor ELLIS.

253. Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general, laborsaving devices, etc., etc. Required of Freshmen in Civil, Electrical and Mechanical Engineering. Two periods, first term. Professor SATTERFIELD and Assistants.

MECHANIC ARTS.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following two-year course in Mechanic Arts is offered.

This course does not lead to graduation, and it is not, in any sense, intended as a preparatory course for the regular four-year classes. It is designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen sphere of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take this course will be carefully drilled in the handicraft of their art, and in the application of elementary science to the shop, drawing-room, and power plant.

II (c). TWO-YEAR COURSE IN MECHANIC ARTS.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mechanical Drawing	3	3
Woodwork	2	2
Forge Work	--	2
Shop Lectures	2	--
Mechanical Technology	--	2
Physics	2	2
Algebra	5	5
Plane Geometry	--	
English	3	3
Military Drill	3	3
Totals	20	22

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Machine Drawing	3	3
Machine-shop Work	3	3
Power Machinery	3	3
Algebra	5	--
Geometry	--	5
English	3	3
Drill	3	3
Elective work:		
Machine Shop or Drawing	2	2
Pattern Work	--	2
Foundry	2	--
Totals	24	24

Subjects of Instruction.

First Year.

Mechanical Drawing.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawing from working sketches of machine details; tracing; blueprinting; elements of Descriptive Geometry; cylinders; cones; prisms; intersections and developments; miscellaneous problems. Three periods. Mr. Coburn.

Note.—Each student will be required to furnish at his own expense the following outfit. To insure uniformity in grade of instruments and other supplies, the department keeps for sale, at practically cost, the articles named below. These may be purchased elsewhere, but must be approved by the department. Estimated cost of outfit, $12 to $15.

Text-book.
Drawing board 21 by 30 inches.
T-square 30 inches.
60° triangle 9 inches, transparent.
45° triangle 7 inches, transparent.
12-inch triangular architect's scale.
Irregular curve.
4 H pencil. H or F pencil.

Erasers for ink and pencil.
Penholder with fine points.
Pencil sharpener.

Instrument set consisting of:

6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen, 4½-inch ruling pen.

Woodwork.—The use and care of the ordinary woodworking bench tools. Exercises in laying out and working from drawing; sawing, planing, and making of joints. The use and care of woodworking machines, such as saws, planers, shapers, dovetailers, tenoners, etc. Exercises in wood-trimming. Work on repairs about the College. Two periods. Mr. WHEELER.

Forge Work.—Treatment of iron and steel, the uses of the fuller, Ewage, punch and set hammer; drawing and upsetting; butt, scarf, and jump welding; making of forge and machine shop tools, with tempering of tool steel; exercises on power hammer. Special work on equipment and repairs about the College. Two periods, second term. Mr. NICHOLS, Mr. HURTT.

Mechanical Technology.—Classification and use of woodworking and forging tools and machines. Methods of woodworking and forging. Arrangement, sizes, and care of belting and shafting; elementary power problems, steel-making, etc. Two periods, second term. Professor SATTERFIELD.

Algebra.—Wells' *New Higher Algebra.* A thorough treatment of the fundamental conceptions and operations of Elementary Algebra, embracing the subjects of factoring, fractions, simple and simultaneous equations, involution, evolution, theory of exponents and radicals. Five periods, first and second terms to March 15. Mr. HARRELSON, Mr. BLACKBURN, Mr. HALES.

Plane Geometry.—Wentworth's *Plane and Solid Geometry.* Three books of Plane Geometry, including numerous original exercises. Five periods, March 15 to end of second term. Mr. HARRELSON, Mr. BLACKBURN, Mr. HALES.

Short Course English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Three hours a week. Required of first-year students. Mr. FARRELL.

Physics.—Properties of matter, fundamental units, British and metric standard measures, mechanics, liquids, gases, heat, introduction to light and sound. Two periods. Mr. McDowell.

Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general; labor-saving devices, etc., etc. Two periods, first term. Professor Satterfield and Assistants.

Second Year.

Foundry.—Recitations and exercises in foundry work, including working condition of the sand, use and care of tools, moulding, core-making, management of cupola and crucible furnaces in iron and brass melting. Elective for second year. Two periods, first term. Mr. Nichols, Mr. Hurtt.

Machine Drawing.—Sketching and drawing of machine parts and machines. Detail working drawings. Tracing and blueprinting. Three periods. Prerequisite, first year Mechanical Drawing. Assistant Professor Ellis.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper-work. Three periods. Mr. Park.

Power Machinery.—Descriptive study of the machinery of steam power plants, engines, boilers, condensers, pumps, steam turbines, piping, care and management, study of gas and oil engines. Combustion of fuels. Indicators; indicated, brake, and boiler horse-power problems. Three periods. Mr. Park.

Pattern-making.—A study of pattern-making in its relation to moulding; the practical construction of patterns to prevent warping and twisting; making of special patterns, cores, and core-boxes, introducing draft, shrinkage, finish, and the appliances and usages of modern pattern work. Prerequisite, Woodwork. Elective for second year. Two periods, second term. Mr. Wheeler.

Algebra.—Wells' *New Higher Algebra.* Begin with quadratic equations and complete summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Prerequisite, first-year Algebra. Professor Yates, Mr. Harrelson, Mr. Blackburn, Mr. Tucker, Mr. Hales.

Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original

exercises. Five periods, second term. Prerequisites, First-year Geometry and a term standing of 60 per cent or more on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

Composition and Rhetoric.—After a review of grammatical principles, especial attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Three periods. Required of second-year students. Mr. PRATT, Mr. FARRELL.

FOUR-YEAR COURSE IN ELECTRICAL ENGINEERING.

The four-year course in Electrical Engineering is planned for those who wish a thorough practical preparation for following this profession. Only the most thorough training in the fundamental laws and principles of electricity and magnetism will suffice as a preparation for this branch of engineering in which the art is advancing so rapidly. This training is given by a careful study of text-books and co-ordinated work in the various laboratories. The department, as will be seen from the equipment described below, is well supplied with dynamos, motors, transformers, and other electrical machines, and with testing instruments and apparatus of all descriptions.

ELECTRICAL ENGINEERING EQUIPMENT.

The course in Electrical Engineering is accompanied by work in the laboratory and the designing-room. The department occupies the western portions of the basement and of the first floor of Winston Hall. On the first floor are the classrooms, offices, library, draftingroom, and instrument laboratory. The classrooms are well equipped for demonstrating the principles studied in the text-books. The designing-room is suitably furnished for its purpose and the instrument laboratory is supplied with standardizing apparatus and instruments, provided for quickly determining the accuracy of all the apparatus used in actual measurements and also for advanced measurements in electricity and magnetism. This room is well supplied with power, current from single-, two- and three-phase sources being available, as well as direct current from the power-house or storage batteries.

In the basement are located the dynamo laboratory, the photometric laboratory, instrument room, the department's repair shop, and rooms for high-tension apparatus, storage battery, and stores.

The dynamo laboratory is a room 90 x 30 feet. Its equipment consists of direct and alternating current dynamos and motors of practically all types and ranging in size from one to thirty-seven kilowatts, the aggregate capacity being about two hundred kilowatts in machines and seventy-five kilowatts in transformers. Power is supplied to the laboratory by means of three independent circuits running from the College power-house. A full complement of ammeters, voltmeters, wattmeters, phasemeters, tachometers, rheo-

stats, condensers, inductances, and other apparatus used in the study of electrical machines is provided. The equipment is arranged so that power is conveniently supplied to a number of independent stations, at each of which a group of students can conduct an experiment without being affected by the work of other groups.

POWER-HOUSE.

The College power-house is also available for student instruction. It is a brick building containing an excellent equipment of modern type. This consists of one seventy-five kilowatt, six-hundred volt, three-phase, revolving field alternator directly connected to a high-speed engine; two fifty-kilowatt, three-hundred volt, three-phase revolving field alternators, driven by a DeLaval steam turbine, with direct-driven exciter; a ten-kilowatt, direct-connected, direct current generator, a motor-generator exciter set; and a completely equipped switchboard.

The City of Raleigh is unusually well situated for students of Electrical Engineering. The local power company has a fine modernized steam turbine-driven plant which operates in conjunction with the water-power plant at Buckhorn Falls, on the Cape Fear River, from which point the power is transmitted at sixty thousand volts. This company also owns the large plant at Blewetts Falls, from which power is transmitted at one hundred and ten thousand volts. This line crosses the College property, and has an open-air transformer and meter station located within easy reach.

LIBRARY.

This department has a small but growing library and takes a number of the leading electrical journals, all of which are at all times available for the students' use.

PHYSICS.

A thorough training in the elements of Physics is necessary as a preparation for entering any engineering profession. The course in Physics is planned with this specific object in view. Instruction in the classroom is accompanied by laboratory courses laid out so as to illustrate the principles taught in the former, and also so as to train the student to observe accurately and to give him considerable facility in the manipulation of scientific instruments. During the first year the subject is presented in an elementary manner. In the second year a more thorough study of general physics is made.

Brief courses in Physics are given for students in Agriculture and Textile Industry and an elementary course is given to students in the short courses in Mechanic and Textile Arts, and Agriculture.

Equipment.

The laboratories and classrooms for the work in Physics are in the basement of Holladay Hall, practically the whole floor being given up to this department. There are two large, well-equipped classrooms with facilities for giving experimental lectures; and there are two large, well-lighted laboratories, one for the first-year course in Physics and the other for advanced physical measurements. Special attention has been paid to the equipment of these laboratories, the object being to enable the student to determine from his actual experience the truth of the principles which he learns in the classroom.

II (d). The Four-year Course in Electrical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Elementary Physics, 280	4	4
Physical Laboratory, 282	1	1
Mechanical Drawing, 230	2	2
Woodwork, 235	2	2
Forge Work, 236	--	2
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Physics, 281	2	2
Physical Laboratory, 283	1	1
Descriptive Geometry, 231	2	--
Mechanical Drawing, 232	--	2
Advanced Algebra, 343	5	--
Trigonometry, 344		
Analytical Geometry, 345	--	5
Inorganic Chemistry, 300	3	3
Inorganic Chemical Laboratory, 301	2	2
Foundry, 237	2	--
Pattern-making, 238	2	2
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Tactics, 391	1	1
Military Drill, 390	3	3
Totals	24	24

Junior Year.

Electrical Engineering, 284	3	3
Electrical Engineering Laboratory, 289	2	2
Steam Engines and Boilers, 241	2	2
Machine-shop Work, 239	1	1
Machine Design, 233	2	2
Mechanics, 250	2	2
Analytical Geometry, 345	5	2
Calculus, 346	--	3–5
English Literature, 364	3	3
Military Drill, 390	3	3
Modern Languages, 370, 372 (elective)	3	3
Totals	23	23

Senior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Alternating Currents, 286	3	3
Electrical Application, 287	2	2
Electrical Transmissions, 288	--	2
Electrical Engineering Laboratory, 291	2	2
Electrical Design, 292	2	2
Applied Mechanics, 251	3	--
Mechanics of Materials, 252	--	2
Steam Engineering Laboratory, 249	1	1
Calculus, 346	3	--
Hydraulics, 216	--	2
Journals, 365	2	--
Classics, 366	--	2
Economics, 367	1	1
Elect one subject from the following:		
Military Drill, 390	3	3
Modern Languages, 370, 371, 372	3	3
Totals	22	22

Subjects of Instruction.

280. Physics.—Introductory course in Physics, planned to give the student a broad view of the field covered by this fundamental science for all engineering work. It includes the study of the fundamental units, the English and Metric systems of measures, definitions of force, work, power, lines of motion, principles of machines, mechanics of fluids, heat, sound, light, electricity and magnetism. Text-book, Milliken & Gale's *A First Course In Physics.* Four periods. Required of Freshmen in Engineering and Chemistry. Associate Professor Heck, Mr. Pritchett.

281. Sophomore Physics.—A more advanced and more thorough course in Physics, arranged particularly to meet the needs of engineering students. Particular attention is paid to Mechanics, fluids, gases, heat, electricity and magnetism. Two periods. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physics 280. Associate Professor Heck, Mr. Pritchett.

282. Physical Laboratory.—In the shops the engineering student handles and works with the materials of construction. In the laboratory he is taught to measure and observe. The course here is arranged to make him familiar through actual observation with physical phenomena, and teach him how these are measured and controlled. It includes practice in handling units in the British and Metric systems, measurements, composition and resolution of forces, the lever, the inclined plane, the pendulum, density of materials, and specific gravity, the thermometer, heat and its effect on materials, sound, laws of strings, laws of lenses and mirrors, magnetism and electricity. One period. Required of Freshmen in Engineering and Chemistry. Mr. McDowell.

283. Sophomore Physical Laboratory.—A more advanced course in physical measurements accompanying classroom instruction in this subject. It includes a study of the theory of measurements upon which all engineering work is based. More care and greater accuracy, and more elaborate reports are required in this course than in the Freshman laboratory. The work is intended not only to impress the truths and principles taught in the classroom but give some facility in the use of scientific instruments and training in accurate observation. One period. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physical Laboratory 282. Associate Professor Heck, Mr. Pritchett.

284. Direct Current Machinery and Apparatus.—A thorough study is made of the production and utilization of direct currents, beginning with the theory of the magnetic circuit, electromagnetic induction, electrical measurements, storage batteries, dynamos and motors, operation and care of direct current machinery, electrical distribution and lighting. Text-book, Franklin & Esty's *Elements of Electrical Engineering.* Three periods, through the year. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281, 342, 343 and 344. Professor Browne.

285. Electrical Engineering.—An introductory course for students in other engineering departments, consisting of the study of the apparatus used in the production, distribution, and utilization of electrical power. Required of Juniors in Mechanical Engineering. Text-book, Timbie's Elements of Electricity. Two periods. Prerequisites, Subjects 281, 342, 343 and 344. Professor Browne.

286. Alternating Currents and Machinery.—A study of the flow of periodic currents in circuits containing resistance, inductance, and capacity; the construction, operation, and performance of alternating current machinery. Text-book, Franklin & Esty's *Alternating*

Currents. Three periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284, 345, 346. Professor BROWNE.

287. Industrial Applications of Electricity.—A detailed study is made of the many industrial applications of electricity, such as electric traction, the electric drive in mill and factory, electric power stations, industrial electro-chemistry and electro-metallurgy, telegraphy, and telephony. Two periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Professor BROWNE, Assistant Professor MCINTYRE.

288. Electrical Transmission of Power.—A practical study of the problems involved in the transmission of power from the generating station to the consumer; hydro-electric developments; high-tension transmission. Required of Seniors in Electrical Engineering. Text-book, Ferguson's *The Elements of Electrical Transmission.* Two periods, second term. Prerequisites, Subjects 284, 289. Professor BROWNE.

289. Direct Current Laboratory.—This study accompanies that of direct current machinery. It includes use of standardizing apparatus, calibration of instruments, advanced electric and magnetic measurements and the operation and testing of direct-current dynamos and motors. Text-book, Sever & Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281 and 283. Assistant Professor MCINTYRE, Mr. PRITCHETT.

290. Electrical Engineering Laboratory.—This course accompanies Study 285. Instruction is given in the care and operation of direct and alternating current machinery. Required of Juniors in Mechanical Engineering. One period. Text-book, Sever's *Direct Current Tests.* Prerequisites, Subjects 281, 283 Assistant Professor MCINTYRE.

291. Advanced Dynamo Laboratory.—This study is taken up simultaneously with the study of alternating currents. It includes practice with alternating currents, measurements of inductance and capacity, experimental study of transformers, alternating current generators and motors, advanced methods of testing electrical apparatus, and shop testing. Text-book, Sever & Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Assistant Professor MCINTYRE.

292. Electrical Design.—An introductory course in the designing of electrical apparatus, taking up the design of rheostats and heat-

ing devices, controllers, electromagnets, transformers, direct and alternating current dynamos and motors. Two periods. Required of Seniors in Electrical Engineering. Prerequisite, Subject 284. Professor BROWNE.

COURSE IN CHEMISTRY.

In harmony with the general purposes for which the College was founded, the course in Chemistry is arranged to prepare young men for careers in that department. To this end the training given in general, organic, and analytical chemistry is supplemented by instruction in technical chemical analysis and in applied chemical subjects. The kindred scientific subjects of Biology and Physics are taught, together with the cultural studies included in the other courses.

The chemical laboratories of the North Carolina Department of Agriculture and of the North Carolina Agricultural Experiment Station afford the student an opportunity to keep in touch with the methods of research in this department of agricultural science.

The State Museum is open to the public each day, and among other things contains a very excellent collection of the State's minerals, ores, and building stones.

There are in the city of Raleigh and its vicinity several manufacturing plants to which, through the courtesy of the owners, the students in chemistry, in company with the teaching staff of this department, make visits each year. These include plants for the manufacture of illuminating gas, sulphuric acid, fertilizers, and ice; for the extraction of cotton-seed oil, and for the dyeing of cotton goods.

CHEMICAL EQUIPMENT.

The Chemical Department occupies the whole of the second floor of Winston Hall. There are two classrooms for about thirty students each and one classroom for ninety students. The classrooms are well lighted, have very convenient lecture tables and settees with arm-rests for taking notes.

The laboratory for inorganic chemistry can accommodate three hundred and thirty-six students, the laboratory for analytical chemistry ninety-six students, and for organic chemistry twenty students. A small laboratory has been set aside for special work. The laboratories are fitted up with conveniently arranged desks and hoods, each of which has the necessary water and gas connections. The balance room is located between the analytical and organic laboratories.

The department also has a dark room for photographic work, fire-proof rooms for combustion, ample stockrooms and a preparation room.

The Chemical library, containing an excellent collection of reference books and complete sets of the leading chemical journals, occupies a room convenient to the laboratories for the upper classmen.

The members of the instructing staff have offices adjacent to the laboratories.

II (e). The Four-year Course in Chemistry, leading to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Inorganic Chemistry, 300	2	2
Inorganic Chemistry (laboratory), 301	1	1
Physics, 280	4	4
Physical Laboratory, 282	1	1
Botany, Elementary, 320	3	3
Algebra, 340	5	--
Geometry, 341	--	5
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Analytical Chemistry, Qualitative, 304	3	3
Physics, 281	2	2
Physical Laboratory, 283	1	1
Geology	2	--
Bacteriology	--	3
Advanced Algebra, 343	1	--
Trigonometry, 344	4	--
Analytical Geometry, 345	--	5
German, 370	3	3
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Tactics, 391	1	1
Military Drill, 390	3	3
Totals	23	24

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Organic Chemistry, 302	2	2
Organic Chemistry (laboratory), 303	3	3
Analytical Chemistry, Quantitative, 305	4	4
Physical Chemistry, 307	3	3
Soils, 331	3	3
German, 370	3	3
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	24	24

Senior Year.

Agricultural Chemistry, 308	2	2
Physical Chemistry, 307	3	3
Analytical Chemistry, Quantitative, 305	8	8
Journals, 365	2	--
Classics, 366	--	2
Elect seven periods from the following:		
Economics, 367	3	3
Military Drill, 390	3	3
Advanced Bacteriology, 322	3	3
Soils, Advanced, 332	3	--
Feeds, 335	--	3
Fertilizers, 333	--	2
Drawing, 230	2	2
Analytical Geometry, 345	5	2
Calculus, 346	--	3
Other Subjects if approved by the Professor of Chemistry.		
Totals	22	22

SUBJECTS OF INSTRUCTION.

300. Inorganic Chemistry.—McPherson & Henderson's *General Chemistry.* The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Three periods. Required of Sophomores in Engineering. Two periods, required of Freshmen in Chemistry. Professor WITHERS, Doctor WILLIAMS, Mr. FETZER.

301. Inorganic Chemistry.—Laboratory work. McPherson & Henderson's *Chemical Experiments.* The student performs under the eye of the instructor experiments designed to illustrate and emphasize the work of the classroom. Two periods, required of Sophomores in Engineering. One period, required of Freshmen in Chemistry. Doctor NOWELL, Mr. SHERWOOD.

302. Organic Chemistry.—Remsen's *Organic Chemistry.* The fundamental principles of organic chemistry and the more important compounds are studied. Two periods. Required of Juniors in Chemistry. Doctor NOWELL.

303. Organic Chemistry.—Laboratory Work. Orndorff's *Laboratory Manual.* The typical transformations and syntheses of the aliphatic and aromatic groups are taken up. The student thus becomes familiar with the reactions and properties of the more important organic compounds. Three periods. Required of Juniors in Chemistry. Doctor NOWELL.

304. Analytical Chemistry.—A. A. Noyes' *Qualitative Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is taught to detect the presence of the common elements in unknown substances. Three periods. Required of Sophomores in Chemistry. Mr. FETZER.

305. Analytical Chemistry.—Lincoln & Walton's *Quantitative Analysis.* Gravimetric and valumetric analysis, special attention being given to the analysis of substances of agricultural and technical importance. Four periods, required of Juniors in Chemistry. Eight periods, required of Seniors in Chemistry. Doctor WILLIAMS.

307. Physical Chemistry.—Lectures, recitations and laboratory work. Three periods required of Juniors in Chemistry. Three periods required of Seniors in Chemistry. Dr. WILLIAMS.

308. Agricultural Chemistry.—Lectures and recitations. Two periods. Required of Seniors in Chemistry. Professor WITHERS.

BOTANY AND BACTERIOLOGY.

320. Elementary Botany.—Recitation, laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi. The student's knowledge is made his own through laboratory work and simple independent investigations. Three periods, first and second terms. Required of Freshmen in Chemistry. Professor FULTON, Mr. YOUNG.

321. Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation and disinfection, and to the relation of bacteria to disease in plants and animals, and to agricultural practice. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Three periods, second term. Required of Sophomores in Chemistry. Mr. COOPER.

322. Bacteriology (Advanced).—A course designed to extend knowledge in special fields and to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil or air. The course is flexible and will be made to fit the requirements of those students electing it. Three periods. Elective for Seniors in Chemistry. Prerequisite, Botany 321. Professor FULTON, Mr. COOPER.

SOILS.

331. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, drainage, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the United States and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of Juniors. Prerequisites, Chemistry 300, 301, and Physics 280. Professor SHERWIN.

332. Advanced Soils.—In this course the student will be guided in the study of any line of soils work he may choose, either along

practical or scientific lines. Laboratory work will be given. Considerable reference will be made to Experiment Station literature, with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. Three periods, first term. Prerequisite, Soils 331. Elective for Seniors in Chemistry. Professor SHERWIN.

333. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers, as shown by their productive capacity. Fertilization of all the principal crops of the State and of any special crops in which the class is interested will be discussed, considering amount, method, and time of application, as well as the most economical formula to use. Two periods, second term. Elective for Seniors in Chemistry. Prerequisite, Soils 331. Professor SHERWIN.

STOCK FEEDING.

335. Stock Feeding.—A study of the compositions of feeds, and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles, so that he can compound suitable rations for the different classes of live stock. Special emphasis will be laid upon practical problems in feeding. Three periods, second term. Elective for Seniors in Chemistry. Professor MCNUTT.

MATHEMATICS.

While the subject of mathematics is presented in such a manner that the student obtains a thorough working knowledge of those principles which he needs in his Engineering Course, yet it is not the purpose to subordinate the general theory of Mathematics to the practical side. The work consists of recitations, written exercises, and lectures, with frequent oral and written quizzes.

340. Algebra.—Wells' *New Higher Algebra.* This course begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

341. Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Required of Freshmen. Prerequisites, entrance requirements and a term standing of 60 per cent or more on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. PITTS, Mr. TUCKER.

343. Advanced Algebra.—Wells' *New Higher Algebra.* The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 340 and 341. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

344. Trigonometry.—Wells' *Plane and Spherical Trigonometry.* Plane Trigonometry. Definitions of the trigometric functions; derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 340 and 341. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

345. Analytical Geometry.—Nichols' *Analytical Geometry.* Loci of equations, straight line, circle, parabola, ellipse, hyperbola, a discussion of the general equation of the second degree, higher plane curves, and geometry of three dimensions. Juniors, five periods, first term; two periods, second term to March 15. Sophomores, five periods, second term. Prerequisites 340 and 341. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN.

346. Differential and Integral Calculus.—Osborne's *Elements of Calculus.* A thorough treatment of the fundamental principles and derivations of formulæ; applications to various problems, such as expansion into series, evaluation and indeterminate forms, maxima and minima, radius of curvature, lengths of curves, areas, volumes, etc. Three periods, second term to March 15; five periods, March 15 to end of term. Required of Juniors in Engineering. Three periods, first term. Required of Seniors in Engineering. Elective for Seniors in Chemistry. Prerequisites for differential calculus, 343 and 344; for integral calculus, differential calculus and 345. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN.

ENGLISH.

360. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and to the study of words, sen-

tences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Mr. PRATT, Mr. FARRELL.

361. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely on class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. FARRELL.

362. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first term, and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

363. Public Speaking.—The principles governing the preparation and delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

364. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods throughout the year. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

365. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Two periods, first term. Required of Seniors in Civil and Electrical Engineering and in Chemistry. Elective for Seniors in Mechanical Engineering. Professor HARRISON.

366. Classics.—The lives and works of the greatest scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Two periods, second term. Required of Seniors. Professor HARRISON.

ECONOMICS.

367. Introductory Economics.—This course is designed to train the student in the elementary principles of economics. A brief survey will be given to the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts, and the governmental regulation of business. Three periods, first term. Open to Seniors. Professor CAMP.

MODERN LANGUAGES.

The aim of the department is to enable one to use a limited vocabulary for practical purposes in speaking and writing fluently simple sentences without idiomatic expressions or difficult constructions, and to read scientific works and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unilingual method is used, based on conversation, humoristic anecdotes, interesting short stories, and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions without the medium of English.

The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates, context, comparisons, contrasts, and associations, beginning with leading simple questions and gradually progressing to more advanced ones, by frequent repetitions, and by a strict adherence to the rule that answers be always given in complete short sentences of the foreign language and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lesson are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language, and of questions and answers in the foreign language. No English appears in an examination paper. No time is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Instruction is given three hours per week. The work is optional, but credit toward a degree is allowed for the successful completion of the work.

The languages regularly taught are German for students of

Chemistry and Mechanical Engineering, and Spanish for Civil and Electrical Engineering students.

A complete set of Holzel's Wall Pictures in colors is used. The pictures represent life of man in the home, the city, during the spring, the summer, fall, and winter, and they furnish most interesting topics for conversation.

370. German.—Worman's Modern Languages, first and second German books; *Deutsches Lese und Uebungsbuch*, by Prokosch; Fischer's *Practical Lessons in German; Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; and a scientific reader. Three periods. Elective for Juniors or Seniors in Engineering. Required of Sophomores and Juniors in Chemistry. Doctor RUDY.

371. French.—Worman's *Modern Languages*, First and Second French books; Worman's *Grammaire Francaise;* selected short stories from French literature, and scientific readers. This subject may be taken by special petition to the Faculty. Doctor RUDY.

372. Spanish.—Worman's *Modern Languages*, First and Second Spanish books; *Introduccion a la Lengua Castellana*, by Marion y Des Garrenes; a Spanish grammar to be selected; Fontaine's *Flores de Espana*, and other short stories of Spanish literature; *Modelos para Cartas.* Elective for Juniors and Seniors in Engineering. Three periods. Doctor RUDY.

MILITARY SCIENCE.

390. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may take either the drill or three extra hours in some other subject instead. Lieutenant SPURGIN and Cadet Officers of the Battalion.

391. Tactics.—Theoretical instruction in infantry drill regulations, field-service regulations, map reading and small-arms firing manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

III. TEXTILE COURSES.

III (a.) The Four-year Course in Textile Industry.

THE TEXTILE DEPARTMENT.

The Textile Department, which is a fully equipped Textile School, contains all the necessary machinery for instruction in manufacturing cotton yarns and fabrics from the bale to the finished product. The student is taught the theory of cotton spinning, weaving, designing and dyeing. In connection with the theory, he learns the practical operation of cotton machinery used in carrying on the different processes. Further, he learns such essential practical details as enable him to adjust and fix the machinery so as to produce the proper results. As a result of this training, each student produces for himself cotton yarns of different numbers, and cotton fabrics of different kinds, from his own designs and choice of colors.

TEXTILE INSTRUCTION.

In this department two courses of instruction are offered, the four-year course, leading to the degree of Bachelor of Engineering, and the two-year course in carding and spinning, weaving, designing, and dyeing.

Four-year Course.

The four-year course offers complete facilities for full instruction in all branches of cotton-mill work. Practical training in textile work begins in the Freshman year and forms a part of the work in each of the following years. The combination of practical with theoretical training is begun in the Sophomore year, and continues in the Junior and Senior years. The theoretical work is directly related to the practical work going on, and this combination offers the best means for studying cotton-mill work and its operations.

Two-year Course.

The two-year course is offered to students who cannot spend the time required for the four-year course, or who have had practical experience in the mill and wish to avail themselves of our facilities for giving special instruction in textile work.

TEXTILE BUILDING AND EQUIPMENT.

The textile building is located on the west campus. It is a two-story brick building one hundred and fifty by seventy-five feet, with a basement. Throughout, its construction is similar to that of a cotton mill, being an illustration of standard construction in this class of buildings. The basement is fitted up with a laboratory and classroom for instruction in dyeing and with dyeing machinery. On the first floor are located the hand and power looms and the necessary warp-preparation machinery. The carding and spinning machinery is located on the second floor. Electricity is used as a motive power, the machinery of each department in the building being driven by a separate motor. The machinery equipment consists of the latest types of cotton-mill machinery, manufactured by American builders.

Power and Power Transmission.

One 30-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving carding and spinning machinery.

One 15-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving weaving machinery.

One 10-horsepower 3-phase 550-volt motor, made by Fairbanks-Morse Company, for driving dyeing machinery.

Pulleys, shafting, hangers, and couplings, made by Jones & Laughlin Company, Ltd., Pittsburg, Pa.

Belting, made by Fayerweather & Ladew, New York City, and Maloney-Bennett Belting Company, Chicago, Ill.

Carding Department.

Opening Room.—One cotton gin, made by Continental Gin Company, Birmingham, Ala. One thread extractor, made by Kitson Machine Company, Lowell, Mass. One combination opener and breaker lapper, made by Kitson Machine Company, Lowell, Mass. One 40-inch single beater finisher lapper, with patent carding beater, made by Kitson Machine Company, Lowell, Mass.

Carding Room.—One 40-inch revolving flat card, 112 flats, with coiler, made by Mason Machine Works, Taunton, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Whitin Machine Works, Whitinsville, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Saco & Pettee Machine Shops, Newton Upper Falls, Mass. One single railway head, with coiler, leather rolls, made by Whitin Machine Works, Whitinsville, Mass. One drawing frame, four deliveries, leather rolls, made by Whitin

Machine Works, Whitinsville, Mass. One railway head, with coiler, metallic rolls, and improved evener motion, made by Saco & Pettee Machine Shops, Newton Upper Falls, Mass. One drawing frame, four deliveries, metallic rolls, made by Saco & Pettee Machine Shops, Newton Upper Falls, Mass. One sliver lap machine, one ribbon lap machine, and one six-head combing machine, made by Whitin Machine Works, Whitinsville, Mass. One 36-spindle slubber for 11 by 5½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I. One 48-spindle intermediate roving frame for 9 by 4½-inch bobbin, made by Saco & Pettee Machine Shops, Biddeford, Me. One 64-spindle fine roving frame for 7 by 3½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I. One 80-spindle jack roving frame for 6 by 2½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I.

Spinning Department.

Spinning Room.—One 64-spindle spinning frame for warp; one 80-spindle spinning frame for filling, made by Whitin Machine Works, Whitinsville, Mass. One 80-spindle spinning frame for warp, one 80-spindle spinning frame for filling, made by Mason Machine Works, Taunton, Mass. One 80-spindle spinning frame for warp, one 80-spindle spinning frame for filling, one 180-spindle spinning frame, tape drive, with combination build, made by Fales & Jenks Machine Company, Pawtucket, R. I. One 64-spindle spinning frame for warp, one 64-spindle spinning frame for filling, made by Saco & Pettee Machine Shops, Biddeford, Me. One 48-spindle spinning frame, combination build, made by D. A. Tompkins Company, Charlotte, N. C. One 240-spindle mule spinning frame, 1½-inch gauge, made by Asa Lees & Co., Oldham, England.

Spooling, Twisting, and Winding.—One 40-spindle spooler, made by Draper Company, Hopedale, Mass. One 40-spindle spooler, made by Whitin Machine Works, Whitinsville, Mass. One 32-spindle spooler, made by Easton & Burnham, Pawtucket, R. I. One 40-spindle spooler, made by D. A. Tompkins Company, Charlotte, N. C. One 48-spindle twister, made by Whitin Machine Works, Whitinsville, Mass. One 100-spindle wet twister, made by Draper Company, Hopedale, Mass. One 48-spindle twister, one-half for wet, one-half for dry twisting, made by Fales & Jenks Machine Company, Pawtucket, R. I. One 50-spindle reel, one-half live, one-half dead spindles, made by D. A. Tompkins Company, Charlotte, N. C.

One 40-spindle reel, made by Draper Company, Hopedale, Mass. One 6-spindle universal winding machine, made by Universal Winding Company, Boston, Mass. One section warper, 400 ends, made by Draper Company, Hopedale, Mass.

Weaving Department.

Warp Preparation.—One 12-spindle bobbin-winding machine, made by Jacob K. Altemus, Philadelphia, Pa. One 4-spindle bobbin winding machine, made by Universal Winding Company, Boston, Mass. One beaming machine, made by Lewiston Machine Company, Lewiston, Me. One beaming machine, complete, made by the T. C. Entwistle Company, Lowell, Mass.

Looms.—One Northrop-Draper print-cloth loom; two Northrop-Draper sateen looms; one Northrop-Draper loom with 20-harness dobby, made by Draper Company, Hopedale, Mass. Three high-speed sheeting looms, made by Kilburn, Lincoln & Co., Fall River, Mass. One sheeting loom, one 12-harness dobby loom, one 24-harness dobby loom, one 4 by 1 gingham loom, made by Whitin Machine Works, Whitinsville, Mass. One print-cloth loom, one 2 by 1 box loom, one 24-harness dobby loom, made by Mason Machine Works, Taunton, Mass. One 4-harness twill loom, made by Lowell Machine Shop, Lowell, Mass. One Crompton 4 by 1 box gingham loom, one Crompton 4 by 1 box loom with 20-harness dobby; one Crompton 2 by 1 box loom with 400-hook Jacquard machine; one Knowles Gem loom with 4 by 4 box; one Stafford single-box loom with 20-harness dobby, made by Compton & Knowles Loom Works, Worcester, Mass. One single-box loom with 200-hook table-napkin Jacquard machine; one 4 by 1 box table-cover loom with 624-hook Halton Jacquard machine, made by Crompton-Thayer Loom Company, Worcester, Mass. One Whitin loom with 624-hook Halton Jacquard for crochet quilts; one 5-cylinder, 200-hook Jacquard, made by Schaum & Uhlinger, Philadelphia; ten 4 by 4 box hand looms with 30-harness witchheads for narrow fabrics; two 4 by 4 box hand looms with 400-hook and 600-hook Jacquard machines, from Thomas Halton's Sons, Philadelphia.

Knitting.—One full automatic knitting machine, made by George D. Mayo Machine Company, Laconia, N. H. One combination ribber and footer, one ribber made by Scott & Williams, Philadelphia. One "Banner" knitting machine, made by Hemphill Manufacturing Company, Pawtucket, R. I. One ribber, made by Wildman Manufacturing Company, Norristown, Pa. One looper, made by Beattie Manufacturing Company, Cohoes, N. Y. One looper, made by Grosser Machine Company, New York.

Dyeing Department.

The Dyeing Department is located in the basement of the Textile Building, and consists of an experimental dyeing laboratory with desk room sufficient for thirty students, a lecture-room, a stock-room, an office, and a room seventy by fifty feet, which is fitted up to give instruction in practical dye-house work.

The dyeing laboratory is well fitted up with appropriate work tables and all the necessary apparatus for experimental dyeing, dye-testing, color-matching, and the testing of dyed samples to light, acids, alkalis, etc., as well as for carrying out the various chemical operations necessary in dyeing. The dye-house is equipped with the proper dyeing machinery needed in the dyeing of large quantities of material, and the giving of practical instruction in boiling out, bleaching, and dyeing of raw stock, cops, skeins, warps, and piece goods.

The department has a large collection of dye-stuffs and color cards. Through the kindness of the various dyestuff dealers and manufacturers, the department is regularly supplied with all new dyestuffs and color cards as soon as they are put on the market, thus affording the student ample opportunity to become familiar with the latest methods and products for commercial work. The department is indebted to the following firms for donations of dye-stuffs and chemicals:

Farbwerke-Hoechst Company, New York.
Badische Company, New York.
Farbenfabriken of Elberfeld Company, New York.
American Dyewood Company, New York.
Berlin Aniline Works, New York.
Cassella & Co., New York.
Kalle & Co., New York.
Geisenheimer & Co., New York.

Dye-house Equipment.—Seven dye vats; one Roessler & Hasslacher bleaching vat; one Jefferson high-pressure boiling-out kier; one hand-dyeing jigger; one 10-gallon steam-jacketed copper kettle; one steam aging box; one Fairmount warp dyeing machine; one Textile Finishing Company's warp dyeing machine; one Textile Finishing Company's warp sizing machine; one 5-can upright dryer; one small Lightfoot raw stock dyeing machine; one Tolhurst Machine Works hydro-extractor; one Schaum & Uhlinger hydro-extractor; one Mather & Platt cloth printing machine; one Fries warp dyeing machine.

A full equipment of analytical balances and other necessary apparatus for experimental work is provided.

III (a). The Four-year Course in Textile Industry, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.*	
	1st Term.	2d Term.
Carding and Spinning, 400†	1	1
Weaving, 401	2	2
Mechanical Drawing, 430	2	2
Shop Lectures, 431	2	--
Woodwork, 432	2	2
Forge Work, 433	--	2
Algebra, 441	5	3
Geometry, 442		2
Elementary Physics, 440	2	2
Composition and Rhetoric, 450	3	--
American Literature, 451	--	3
Military Drill, 480	3	3
Totals	22	22

Sophomore Year.

Carding and Spinning, 400	2	3
Weaving, 401	2	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Inorganic Chemistry, 420	3	3
Inorganic Chemistry (laboratory), 421	2	2
Drawing	--	2
Advanced Algebra‡ / Trigonometry, 445	5	
Advanced Rhetoric, 452	3	3
Public Speaking, 453	--	
Military Drill, 480	3	3
Military Tactics, 481	1	1
Totals	23	22

*The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

‡First five weeks.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	4	4
Weaving, 401	3	3
Textile Designing, 402	3	2
Cloth Analysis, 403	--	1
Dyeing, 410	2	2
Dyeing (laboratory), 411	3	3
Steam Engines and Boilers, 435	2	2
English Literature, 454	3	3
Military Drill, 480	3	3
German (elective), 460	3	3
Totals	23	23

Senior Year.

Carding and Spinning, 400	4	4
Weaving, 401	4	4
Textile Designing, 402	3	3
Cloth Analysis, 403	1	1
Dyeing, 410	1	1
Dyeing (laboratory), 411	3	3
Mill Accounting and Mill Costs, 404	1	1
Machine-shop Work, 434	2	2
Elect three periods from the following:		
Journals, 455	2	--
Classics, 456	--	2
Economics, 457	1	1
Military Drill, 480	3	3
Modern Languages, 460, 461	3	3
Totals	22	22

SUBJECTS OF INSTRUCTION.

400. Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: Classifying the plant, its growth, varieties, ginning, baling and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers, railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts, speed of parts, production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: *Cotton Mill Processes and Calculations*, by Tompkins; *Cotton Spinning*, by Nasmith. Required of Freshmen, Sophomores, Juniors, and Seniors. Assistant Professor PARKER.

401. Weaving.—Lectures and practice in warp preparation, operating and fixing looms, cloth-finishing machinery. Warp preparation; pin frame warper; section warper; beam warper; construction of beam warper, stop motion, measuring motion, creel; pattern warp making; long and short chain beamers. Slashing: Steam cylinder slasher; hot-air slasher; construction of slasher, creel, cylinder, immersion roll, squeeze rolls, drying fan, separator rolls, winding yarn on beam, cone drive, slow motion, measuring and cut marking motion. Sizing: Construction of size kettle; size mixing and boiling; division of sizing ingredients; value of ingredients; sizing recipes for light, medium, and heavy sizing. Loom-mounting: Reeds and harnesses; drawing in and putting warps in loom. Looms: Hand looms and power looms; construction of plain loom; principal movements in weaving; let-off and take-up motions; filling stop motion; warp stop motion. Cams and their construction. Magazine looms, construction and advantages. Drop box looms: Chain building for box looms; changing boxes to have easy running looms; construction and value of multipliers; timing and fixing box motions. Pick and pick-looms. Box-chain and multiplier-chain building; arrangement of colors in boxes to give easy-running loom. Ball and shoe-pick motion. Construction and fixing of head motion. Dobby, single and double index; construction and fixing of dobby; extra appliances necessary for weaving leno, towel, and other pile fabrics. Value of easers; half motion; and jumper attachment for leno. Springs and spring-boxes. Pattern chain building. Jacquard: Single and double lift; construction and tie-up. Weave-room calculations, speed and production

calculations, relative speed of looms, counts of cotton harness. Finishing: Inspection of cloth; singeing and brushing; calendering, tentering; folding and packing for the market. Equipment necessary for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: *Weaving, Plain and Fancy*, by Nelson. Required of Freshmen, Sophomores, Juniors, and Seniors in the Four-year Course, and of first and second year students in the Short Course. Professor NELSON, Mr. STEED.

402. Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves: Plain, twill, satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves, plain and fancy basket weaves, warp and filling rib weaves. Broken twills, curved twills, corkscrew twills, entwining twills. Granite weaves, satin shading. Combination of weaves; figured weaving on plain ground. Satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno, honeycomb weaves. Bedford cords and combination with other weaves. Wave designs, pointed twills, diamond effects. Plain and fancy piques. Double plain, figured double plain. Double cloths. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp; cloths ornamented with extra filling. Cotton velvet. Corduroy. Matelasse, Leno weaves with one, two, and more sets of doups. Principles of working both top and bottom doups. Combination of plain and fancy weaves with leno. Methods of obtaining leno patterns. Jacquards. Distribution and setting out of figures for geometrical and floral effects. Distributing figures to prevent lines. Areas of patterns. Preparation of sketches. Transfer of sketches to design paper. Painting in the design with different weaves according to sketch. Shading the patterns. Card cutting and lacing. Required of Sophomores, Juniors and Seniors. Professor NELSON, Mr. STEED.

403. Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile cal-

culations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of Sophomores, Juniors, Seniors. Professor NELSON, Mr. STEED.

404. Mill Accounting and Cost Finding.—The general fundamental principles of the various systems of cost-finding as applicable to the different classes of manufactured products are carefully explained, as well as questions of commissions, discounts, depreciation, inventories, distribution of expenses, etc. As a clear understanding of accounting is necessary for intelligent cost-finding, the method of keeping accounts is studied in detail. The general idea is to impress on the student the relative cost of production for any class of manufactured product and to show how the different processes of manufacturing influence cost. One period, first and second terms. Required of Seniors. Mr. HALSTEAD.

DYEING COURSE.

This course is especially for those who wish to engage in any branch of Textile Chemistry, Dyeing, Bleaching, Finishing, or in the manufacture or sale of dyestuffs and chemicals used in the textile industry, and is designed to give a scientific technical education to those who desire to embrace these branches of industrial technology.

Dyeing as an art has long been practiced, but with the introduction of scientific methods it is rapidly developing and assuming a position in the front rank of applied sciences.

As the textile industries of the State increase, the need of young men who have been trained in the principles as well as the practice of the different factory operations becomes apparent. In the course in dyeing the student is taught the different practical methods of the dye-house; the chemistry of the dyestuffs, some of each class of which he actually makes; the chemical changes brought about by mordants, assistants, etc. He also learns color matching, dye testing, and the methods for the analysis of the different chemicals used in the dye-house. He carries on the study of carding, spinning, weaving, designing, cloth analysis, etc., to the end of the Sophomore year, with the other textile students, and with them devotes attention to shop-work, drawings, engines, boilers, etc., together with the general studies of English, History, Mathematics, Physics, and General Chemistry, which are required in all the Four-year Courses.

III (b). The Four-year Course in Dyeing, leading to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	1	1
Weaving, 401	2	2
Mechanical Drawing, 430	2	2
Shop Lectures, 431	2	--
Woodwork, 432	2	2
Forge Work, 433	--	2
Algebra, 441	5	3
Geometry, 442	--	2
Elementary Physics, 440	2	2
Composition and Rhetoric, 450	3	--
American Literature, 451	--	3
Military Drill, 480	3	3
Totals	22	22

Sophomore Year.

Carding and Spinning, 400	2	3
Weaving, 401	2	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Inorganic Chemistry, 420	3	3
Inorganic Chemistry (laboratory), 421	2	2
Drawing	--	2
Advanced Algebra, 444 Trigonometry, 445	5	--
Advanced Rhetoric, 452	3	3
Public Speaking, 453	--	
Military Drill, 480	3	3
Military Tactics, 481	1	1
Totals	23	22

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Dyeing, 410	2	2
Dyeing (laboratory), 411	5	3
Organic Chemistry, 422	2	2
Analytical Chemistry, 424, 425	5	7
English Literature, 454	3	3
Military Drill, 480	3	3
German (elective), 460	3	3
Totals	23	23

Senior Year.

Dyeing, 410	3	3
Dyeing (laboratory), 411	2	2
Analytical Chemistry, 425	6	6
Organic Chemistry (laboratory), 426	3	3
Elect six periods from the following:		
Journals, 455	2	--
Classics, 456	--	2
Economics, 457	1	1
Military Drill, 480	3	3
German, 460	3	3
Totals	22	22

Subjects of Instruction.

410. Dyeing.—With the microscope and other testing apparatus the student makes a careful study of the various fibres used in the textile industry. He also studies the chemical and physical properties of these fibres, and the action of acids, alkalis, heat, moisture, and the various other agencies to which fibres are liable to be subjected. He next takes up the study of the fundamental principles which underlie the arts of bleaching and dyeing, such as the boiling out and bleaching of cotton, and the chemical reactions involving each step; the adaptability of water for bleaching and dyeing, fol-

lowed by the theories of dyeing; substantive dyestuffs and their application to cotton; after-treatment of direct dyestuffs, including diazotising and developing and the topping with basic dyestuffs; the application to cotton of basic dyestuffs, acid dyestuffs, mordant dyestuffs, including a study of the various mordants and their fixation with metallic salts; dyeing with sulphur dyestuffs, indanthrenes, indigo, natural and artificial, aniline black, turkey red, and the insoluble azo colors developed on the fiber; the methods of bleaching and dyeing of linen, jute, ramie, and other vegetable fibers; the scouring and bleaching of wool; the carbonization and chlorination of wool; the application of basic acid, chrome, eosin, and direct colors to wool; dyeing wool with logwood, fustic, and other natural dyewoods; methods of the making and dyeing of artificial silk; the boiling off, bleaching and dyeing of natural silk; study of the chemical and physical changes which take place during mercerization; also the methods of dyeing mercerized goods; the use of the various kinds of machines used in bleaching and dyeing; the dyeing of raw-stock, skeins, cops, warps, piece goods, hosiery, underwear, and unions; the science of color-mixing; color-matching on textiles; the use of the tintometer and colorimeter; calico printing, including the various methods of preparing the various pastes, thickening agents, mordants and assistants used in printing; quantitative analysis of mixed yarns, and fabrics composed of cotton, wool, and silk; the testing of dyestuffs for their shade, tinctorial power, and leveling properties; comparative dye trials to determine money value; testing for mixtures; the reactions of acids, alkalis, and reducing agents on several samples taken from the different classes of dyestuffs.

The course of lectures, as outlined above, will include the consideration of many difficult problems that arise in the dye-house, with especial reference to the dyeing, mercerizing, and finishing of cotton yarns and pieces. Required of Juniors and Seniors in Textile Industry. Mr. HALSTEAD.

411. Dyeing Laboratory.—A series of experiments is performed which covers all the subjects taken up in the lecture course, and includes a large amount of work done in the laboratory and dye-house. Special stress is put on the matching of colors and the dyeing of sulphur and indanthrene dyestuffs. Each student is required to bleach and dye a large number of samples of yarn and cloth on a small scale, and is required to mount specimens of his work in a pattern book. At the discretion of the instructor in charge, the class bleaches and dyes larger quantities of raw-stock, cloth and yarn in the dye-house, as well as prints samples on the laboratory

printing machine. This work will be supplemented by visits to the mills which do dyeing in the city of Raleigh. Required of Juniors and Seniors in Textile Industry. Mr. HALSTEAD.

CHEMISTRY.*

420. Inorganic Chemistry.—McPherson & Henderson's *General Chemistry.* The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHERS, Doctor WILLIAMS, Mr. FETZER.

421. Inorganic Chemistry.—Laboratory work. McPherson & Henderson's *Chemical Experiments.* The student performs under the eye of the instructor experiments designed to illustrate and emphasize the work of the classroom. The latter part of the year is devoted to an introductory course in qualitative analysis. Two periods. Required of Sophomores. Doctor NOWELL, Mr. SHERWOOD.

422. Organic Chemistry.—Remsen's *Introduction to the Study of the Compounds of Carbon.* The fundamental principles of organic chemistry and the more important compounds are studied through the aliphatic series. Two periods. Required of Juniors in Dyeing. Doctor NOWELL.

424. Analytical Chemistry.—A. A. Noyes' *Qualitative Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is taught to detect the presence of the common metallic elements, as well as that of the acids, in unknown substances. Four periods, first term. Required of Juniors in Dyeing. Doctor WILLIAMS.

425. Analytical Chemistry.—Treadwell's *Quantitative Analysis.* Gravimetric and volumetric analysis, special attention being given to the analysis of substances of technical importance. Seven periods, second term. Required of Juniors in Dyeing. Six periods. Required of Seniors in Dyeing. Doctor WILLIAMS.*

426. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual.* The typical transformations and syntheses of the aliphatic and aromatic groups are taken up. The student thus becomes familiar with the reactions and properties of the more important organic compounds. One of each of the more important classes of dyestuffs is prepared and the properties studied. Three periods. Required of Seniors in Dyeing. Doctor NOWELL.

*For further information, see Course in Chemistry.

MECHANICAL ENGINEERING.*

430. Mechanical Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine; elementary principles of descriptive geometry; cylinders, cones, and prisms; intersection and development of surfaces; miscellaneous problems. Two periods. Required of Freshmen. Mr. COBURN.

431. Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general, labor-saving devices, etc. Two periods, first term. Required of Freshmen. Professor SATTERFIELD and assistants.

432. Woodwork.—Use of bench tools; working from drawings, lining, sawing, planing; practice in making simple exercises in woodturning. Two periods. Required of Freshmen. Mr. CLAY.

433. Forge Work.—Exercises in working with iron, welding; use and care of forge tools and fires. Two periods, second term. Required of Freshmen. Mr. HURTT, Mr. NICHOLS.

434. Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper work. Two periods. Required of Textile Seniors. Mr. PARK.

435. Steam Engines and Boilers.—A study of the structural details of modern steam engines; the slide valve, both in its simple form and when used in combination with independent cut-off valves; link motion and other reversing gears; and the Zeuner diagram. Attention is given to the effect of the reciprocating parts and to inertia and tangential pressures; the class also studies the steam-engine indicator, indicator rigging, and steam distribution as disclosed by the indicator.

The various forms of steam boilers are studied, and the methods employed in their construction are noted. The following subjects are studied in detail: number and size of tubes and flues, the thickness of plates, strength of different styles of riveting, kinds of bracing, amount of grate and heating surface, different kinds of steam and water gages, safety valves and injectors; the causes and methods of preventing foaming, incrustation, and corrosion; the manner of setting boilers, and of operating them with safety and

*For further information, see Course in Mechanical Engineering.

economy; feed-water heaters; mechanical stokers; smoke-consumers and chimneys. Two periods. Required of Juniors in Textile Industry. Mr. VAUGHAN.

PHYSICS.*

440. Elementary Physics.—In this course special stress is laid upon the subjects of mechanics, liquids, gases, and heat. It includes the study of the fundamental units, British and metric standard measures, definitions of force, work and power, laws of motion, principles of machines, mechanics of fluids, gases, and heat, and brief introductions to the study of sound and light. Two periods. Required of Freshmen. Assistant Professor MCINTYRE.

MATHEMATICS.

441. Algebra.—Wells' *New Higher Algebra.* Begin with quadratic equations and complete summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutation, combinations and continued fractions. At the beginning of the term a review is usually given on involution, evolution, theory of exponents, and radicals. Five periods, first term; three periods, second term to March 15. Required of Freshmen. Prerequisites: For first term, entrance requirements; for second term, the work of the first term, or, in case of failure, a term standing of 60 per cent or more, and a final examination grade of at least 40 per cent, on the work of the first term. Professor YATES, Mr. BLACKBURN, Mr. HARRELSON, Mr. TUCKER.

442. Plane Geometry.—Wentworth's *Plane and Solid Geometry.* A complete course in Plane Geometry, including numerous original exercises. Second term. Two periods, to March 15; five periods, from March 15 to end of term. Required of Freshmen. Prerequisite, entrance requirements. Mr. BLACKBURN, Mr. HARRELSON, Mr. TUCKER, Mr. HALES.

444. Advanced Algebra.—Wells' *Higher Algebra.* The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequites, 340 and 341. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

445. Trigonometry.—Wells' *Plane and Spherical Trigonometry.* Plane Trigonometry. Definitions of the trigonometric functions;

*For further information, see Course in Electrical Engineering.

derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 441 and 442. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

ENGLISH.

450. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and to the study of words, sentences and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Mr. PRATT, Mr. FARRELL.

451. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. FARRELL.

452. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

453. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

454. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods through the year. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

455. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The fre-

quent essays required are mainly of scientific and technical character. Two periods, first term. Open to Seniors. Professor HARRISON.

456. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Two periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

457. Introductory Economics.—This course is designed to train the student in the elementary principles of Economics. A brief survey will be given to the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts and the government regulation of business. Three periods, first term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The aim of the department is to enable one to use a limited vocabulary for practical purposes in speaking and writing fluently simple sentences without idiomatic expressions or difficult constructions, to read scientific works, and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unilingual method is used, based on conversation, humoristic anecdotes, interesting short stories and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions without the medium of English. The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates, context, comparisons, contrasts, and associations, beginning with leading simple questions, and gradually progressing to more advanced ones, by frequent repetitions, and by a strict adherence to the rule that answers be always given in complete short sentences of the foreign language, and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lessons are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language and of questions and answers in the foreign language. No English appears in an examination paper. No time

is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Instruction is given three hours per week.

Students may elect German during the Junior or Senior year. The work is optional, but credit towards a degree is allowed for the successful completion of the work. Work begun and continued a month may not be dropped without consent of the Faculty.

The languages taught are German and French.

460. German.—Worman's *Modern Languages*, first and second German books; *Deutsches Lese und Uebungsbuch*, by Prokosch; Fischer's *Practical Lessons in German; Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; and a scientific reader. Three periods. Elective for Juniors and Seniors. Doctor RUDY.

461. French.—Worman's *Modern Languages*, first and second French books; Worman's *Grammaire Francaise;* selected short stories from French literature, and scientific readers. Doctor RUDY.

This subject may be taken by special petition to the Faculty.

MILITARY SCIENCE.

480. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company and battalion; ceremonies including inspection, parade, review and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

481. Tactics.—Theoretical instructions in infantry drill regulations, field-service regulations, map reading and small-arms firing manual. One period a week. Required of Sophomores. Lieutenant SPURGIN.

TWO-YEAR COURSE IN TEXTILE INDUSTRY.

The two-year course is offered to students who can not spend the time required for the four-year course, or who have had practical experience in the mill and wish to avail themselves of our facilities for giving instruction in textile work.

III (c). The Two-year Course in Textile Industry.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning	2	2
Weaving	3	3
Textile Designing	2	1
Cloth Analysis	--	1
Mechanical Drawing	2	2
Forge Work	2	2
Algebra Plane Geometry	5	5
English	3	3
Military Drill	3	3
Totals	22	22

Second Year.

Carding and Spinning	5	5
Weaving	4	4
Textile Designing	2	1
Cloth Analysis	--	1
Dyeing	3	3
Machine-shop Work	2	2
English	3	3
Military Drill	3	3
Totals	22	22

DESCRIPTION OF SUBJECTS.

Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: classifying the plant; its growth; varieties; ginning, baling, and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers; railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts; speed of parts; production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: *Cotton Mill Processes and Calculations*, by Tompkins; *Cotton Spinning*, by Nasmith. Required of first and second year students. Assistant Professor PARKER.

Weaving.—Lectures on construction of plain, twill, sateen, gingham, pick and pick looms are given; also on construction of dobbies and jacquards.

Lectures begin with the construction of plain loom, first taking up the principal movements in weaving, then the various secondary or auxiliary movements, and the relation and timing of one movement to another. Additional motions and parts required to be added to a plain loom in order to weave twill and sateen cloths. Magazine looms; construction and advantages. Drop box looms; construction of the various motions; arranging colors in boxes; methods of building box chains. Dobby: construction of single and double index; setting, and starting up dobby on loom; fixing dobby. Pick and pick looms: construction of loom; construction of head motion; building box chains to have easy-running loom. Jacquard: single and double lift; construction and tie-up. Weave-room calculations for speed and production; counts of reed and cotton harness. Finishing cotton fabrics. Necessary equipment for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: *Weaving, Plain and Fancy*, by Nelson. Required of first and second year students. Professor NELSON, Mr. STEED.

Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves; plain; twill; satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves; plain and fancy basket weaves; warp and filling rib weaves. Broken twills; curved twills; corkscrew twills; entwining twills. Granite weaves; satin shading. Combina-

tion of weaves; figured weaving on plain ground. Fancy satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno; honeycomb weaves. Bedford cords and combination with other weaves. Wave design; pointed twills; diamond effects. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp. Cloths ornamented with extra filling. Combination of plain and fancy weaves. Practical application of weaves to fabrics. Advanced designs. Required of first and second year students. Professor NELSON, Mr. STEED.

Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of first and second year students. Professor NELSON, Mr. STEED.

DRAWING AND SHOP WORK.

Mechanical Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine. Elementary principles of descriptive geometry; cylinders, cones, and prisms; intersection and development of surfaces; miscellaneous problems. Two periods. Required of first-year students. Mr. COBURN.

Forge Work.—Exercises in working with iron, welding; use and care of forge tools and fires. Two periods. Required of first-year students. Mr. WHEELER.

MATHEMATICS.

Algebra.—*Wells' New Higher Algebra.* A thorough treatment of the fundamental conceptions and operations of Elementary Algebra, with special attention to factoring, fractions, simple equations,

simultaneous equations and problem solving, involution, evolution, theory of exponents, and radicals. Five periods, first and second term to March 15. Required of first year students. Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

Plane Geometry.—This course begins the subject and completes the first three books, special attention being given to original exercises. Five periods, March 15 to the end of second term. Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company and battalion; ceremonies including inspection, parade, review and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

ENGLISH.

Short Course English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Three hours a week. Required of first-year students. Mr. FARRELL.

ADDITIONAL SUBJECTS IN THE SECOND YEAR.

Dyeing.—The object of this course is to give the student a sound practical knowledge of the fundamental principles which underlie the arts of bleaching dyeing, mercerizing, etc., of cotton yarns and fabrics. The manipulation of the various machines used in bleaching, dyeing, and mercerizing is carefully explained. The physical and chemical properties of the material to be dyed receive first consideration, followed by a study of the adaptability of water for bleaching, dyeing, mordanting, etc. The practical application of the dyestuffs themselves is treated in the most thorough and detailed manner, *e. g.*, the substantive dyestuffs dyed direct, diazotised and developed, after-treated with metallic salts, topped with basic dyes, etc., the basic dyestuffs, sulphur dyestuffs, indanthrene dyestuffs, etc. Practice in color-mixing and matching is given. The student in this way acquires a collection of several hundred dyed samples which, when mounted in his pattern book, serve as a valuable reference. The course is supplemented by lectures, which will include the consideration of many difficult problems that arise in the dye-

house. Three periods. Required of second-year students. Mr. HALSTEAD.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper work. Two periods. Required of second-year students. Mr. PARK.

ENGLISH.

Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and to the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of second-year students. Three periods, first term. Mr. PRATT, Mr. FARRELL.

American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of second-year students. Mr. PRATT, Mr. FARRELL.

NORMAL COURSES.*

The Normal Courses are intended for the education of teachers, both men and women, chiefly along industrial lines. Industrial education, particularly in agriculture, is being introduced into our public schools, and there is a constant demand for teachers well trained in these subjects. It is hoped by means of the Normal Courses to help supply this demand. Our School Law already requires agriculture to be taught in the public schools, and manual work will doubtless be added. The courses are devoted largely to agriculture and nature study, and include also a review of other public school studies.

Persons already engaged in teaching may, at slight expense of time and money, by means of the short course, or Summer School, make themselves proficient in one or more industrial lines. Persons preparing to teach may take the full courses, and thus become proficient, not only along industrial lines, but also in the other public school branches and in one or more sciences, or in higher mathematics and English. The industrial training given is both practical and theoretical, and is arranged with reference to the present needs of the public schools in North Carolina. The Normal Courses are as follows:

*See also Normal Division of Agricultural Course, page 48.

IV. Courses for Rural Teachers.

(a) Two-year Course.
(b) One-year Course.
(c) Four-weeks Summer Course.

First Year.

IV. (*a*) TWO-YEAR COURSE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Physics or Mathematics	5	5
Chemistry	3	3
English	3	3
Botany	3	3
Zoology	--	3
Agriculture	3	--
Plant Propagation	3	--
Vegetable Gardening	--	3
Physiology	--	3
Farm Management	3	--
Totals	23	23

Second Year.

Landscape Gardening	--	3
Practical Pomology	3	--
Soils	3	3
Poultry	3	--
Plant Diseases	2	2
Economic Entomology	--	3
Breeds	--	3
Dairy	3	--
Agriculture	4	4
Elective	4	4
Totals	22	22

IV. (*b*) ONE-YEAR COURSE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Botany	3	3
Zoology	--	3
Agriculture	3	--
Plant Propagation	3	--
Vegetable Gardening	--	3
Physiology	--	3
Soils	3	3
Poultry	3	--
Breeds	--	3
Dairy	3	--
Elective	5	5
Totals	23	23

THE SUMMER SCHOOL OF AGRICULTURE FOR TEACHERS.

With the establishment of 215 State high schools, in which the most important subject of instruction is agriculture, and with the requirement that this subject be taught also in the common schools, the demand for teachers trained in the sciences upon which agriculture is founded and in their practical application, has become imperative. The Summer School of Agriculture has been established to afford teachers the opportunity to equip themselves to meet this demand.

All the resources of the agricultural department of the College in buildings, farms, live stock, and equipment, are used for the benefit of the Summer School. The entire faculty of this department, so far as needed, will form the staff of instructors.

As it is of course impossible adequately to cover all the branches of agriculture in one session of four weeks, the course of study is arranged progressively for four years. Provision is made, however, for the immediate demands upon the teacher by giving in the first year of the course the essentials for successful school instruction in agriculture. A certificate of work done is issued at the end of each session, and upon the completion of the course there is conferred a full certificate which the State Superintendent of Public Instruction agrees to accept in lieu of examination on the subjects taken.

A special number of the College Record is issued in March, giving full information concerning courses of instruction, expenses, and other matters of the Summer School. A copy of this will be sent upon application to the Registrar of the College.

RULES FOR ADVANCED DEGREES.

Two degrees are conferred: The Engineering Degree to non-resident graduates of the engineering courses and Master of Science to resident students pursuing graduate work.

ENGINEERING DEGREES.

1. That degree of Civil Engineer, Mechanical Engineer, or Electrical Engineer may be conferred upon graduates of the several engineering departments of the College not sooner than three years after graduation.

2. Each candidate for an engineering degree must file his application for enrollment not later than October 5th.

3. He must file with his application a statement of the work he has done since graduation and the title of the thesis which he will present.

4. The record of the work and the subject of the thesis must be approved by the Faculty's standing committee on graduate students before the applicant will be enrolled as a candidate for a degree.

5. The completed thesis must be submitted in approved form not later than May 1. Reports, designs, or drawings made in the regular course of his employment will not be accepted.

6. A candidate must submit with his thesis tangible records of the work he has done and upon which his application for the degree is based, such records to consist of complete drawings, detailed drawings, photographs, records of tests, or other such matter as will show the character of the work done and indicate the degree of responsibility that has been placed upon him.

7. If the record of the work done be approved and the thesis accepted by the Faculty, the candidate, upon notification, must present himself for examination not later than the Saturday preceding the annual commencement. The examination shall consist of oral questions on the subject-matter of the thesis and on the work done by the candidate since graduation.

MASTER OF SCIENCE.

The degree of Master of Science will be conferred on graduate students who fulfill the following requirements:

1. The candidate must have received the bachelor's degree from this College or another institution having an equivalent course of study.

2. Not less than one year must intervene between the conferring of the bachelor's degree and the master's degree.

3. A course of study consisting of one major and two minor subjects, aggregating fifteen periods, must be pursued during residence at the College for not less than one year.

4. The major subject, covering seven periods, shall be strictly graduate work and selected in that department in which the bachelor's degree has been taken.

5. The two minor subjects, aggregating eight periods, shall be chosen from departments allied to the department in which the major subject is taken. The work of the minor subject shall be of a grade not lower than that of the junior year in these departments. Work for which the applicant has received credit towards the bachelor's degree shall not be accepted for credit toward the master's degree.

6. A satisfactory thesis must be presented, the theme of which must be approved by October 5, and previous to his final examination the candidate shall be examined on his thesis and related subjects by a committee composed of professors in charge of the major and minor subjects and two professors in other departments designated by the Faculty.

7. In case the applicant be teaching or working for the College, he shall not be allowed to carry more than one-half of his work at one time, and no work done for the College as instructor shall be credited towards his degree.

FORM OF THESIS.

The thesis must be presented on unruled, white paper, 8⅛ by 11 inches in size, twenty-pound Persian bond or the equivalent. A suitable title page, printed or typewritten, must be prepared. The thesis must be neatly typewritten, properly paged, leaving a margin of 1½ inches on the left for binding, the writing to be on one side of the page only. All drawings or diagrams must be neatly and carefully prepared and where the size of paper necessary is larger than that of the page it must be of such size as conveniently to fold in with the thesis.

The thesis shall become the property of the College and will be placed on file.

DONATIONS.

To the Department of Physics and Electrical Engineering.

Electrical Review Publishing Company, Chicago, Ill.—*The Electrical Review and Western Electrician.*

The Department of Commerce.—*Bulletin of the Bureau of Standards.*

Technical Publishing Company, San Francisco.—*Journal of Electricity, Power and Gas.*

Progressive Age Publishing Company, New York.—*Gas Age.*

Illuminating Engineering Publishing Company, New York.—*Good Lighting.*

Electrical Engineering Publishing Company, Atlanta, Ga.—*Electrical Engineering.*

General Electric Company, Schenectady, N. Y.—*General Electric Review.*

Western Electric Company, Chicago, Ill.—*Western Electric News.*

To Textile Department.

Fales & Jenks Machine Company, Pawtucket, R. I.—One 1-80 Spindle Spinning Frame with tape drive.

American Enamel Company, Providence, R. I.—Lease and Dye Rods.

Southern Novelty Company, Hartsville, S. C.—Paper Tubes for Roving.

Emmons Loom Harness Company.—Lease Reed, Slasher Combs, Sample Harness.

Hampton Company, Easthampton, Mass.—Mercerized Yarns.

Flexible Steel Lacing Company, Chicago, Ill.—Steel Belt Lacing.

J. H. Williams & Company, Millbury, Mass.—½ dozen hand threading Shuttles.

R. Sergeson & Company, Philadelphia, Pa.—½ dozen hand threading Shuttles.

Steel Heddle Company, Philadelphia, Pa.—2 sets wire doup Heddles.

Jones & Laughlin, Pittsburgh, Pa.—Pulleys.

Chadwick, Hoskins Company, Charlotte, N. C.—One beam Warp Yarn.

Keever Starch Company, Columbus, Ohio.—100 pounds Victor Mills Starch.

Draper Company, Hopedale, Mass.—600 Filling Bobbins.

Clark Publishing Company, Charlotte, N. C.—*Mill Directory.*

Davidson Publishing Company, New York.—*Textile Directory.*

The Henrietta Mills, Caroleen, N. C.—One beam Warp Yarn.

Kallé & Company, New York.—Collection of dyestuffs and pattern cards.

Cassella & Company, New York.—Collection of dyestuffs and pattern cards.

The Bayer Company, New York.—Collection of dyestuffs and pattern cards.

Berlin Aniline Works, New York.—Collection of dyestuffs and pattern cards.

Badische Company, New York.—Collection of dyestuffs and pattern cards.

Farbwerke-Hoechst Company, New York.—Collection of dyestuffs and pattern cards.

Also the following textile journals:

Textile Manufacturer, Charlotte, N. C.

Southern Textile Bulletin, Charlotte, N. C.

Mill News, Charlotte, N. C.

Wool and Cotton Reporter, Boston, Mass.

Fiber and Fabric, Boston, Mass.

Textile Manufacturers' Journal, New York.

New York Journal of Commerce, New York.

American Industries, New York.

Canadian Textile Journal, Montreal, Canada.

To the Agronomy Department.

Co-Mortimer Co.—Eight Pure Cultures for Legume Inoculation.

To the Library.

Pranke, E. J.—*Cyananid.*

N. K. Fairbanks Co. (Publishers).—*Fifty-two Sunday Dinners.*

Frank P. Bennett (Publisher).—*How to Build, Equip, and Operate a Cotton Mill in the United States.*

Hill Peebles Wilson.—*John Brown, Soldier of Fortune.*

Harold Jacoby.—*Astronomy.*

B. F. Sturtevant Company (Publishers).—*Heating and Ventilation.*

John P. Altgeld.—*The Cost of Something for Nothing.*

CATALOGUE OF STUDENTS.

GRADUATES.

Name.	*Post Office.*	*Course.*
Everett Hanson Cooper, B.S.	West Raleigh,	Agr.
William Hunt Eaton, B.S.,	Raleigh,	Agr.
Alexander Littlejohn Feild, A.B.,	Raleigh,	Chem.
James Miller Gray, B.S.,	Raleigh,	Agr.
Gordon Harris, B.E.,	Schenectady, N. Y.,	E. E.
Edgar Allan Hodson, B.S.,	West Raleigh,	Agr.
O'Kelly W. Myers, B.E.,	Brooklyn, N. Y.,	C. E.
Warren Carney Norton, Ph.B.,	West Raleigh,	Agr.
Risden Patterson Reece, B.S.,	Winston-Salem,	M. E.
Elmer Aldrich Rickard, A.B.,	West Raleigh,	E. E.
Fleming Bates Sherwood, B.S.,	West Raleigh,	Chem.
Leslie Warren Shook, B.S.,	West Raleigh,	Agr.
John Spicer Wilson, B.E.,	Keokuk, Iowa,	E. E.
Harry Curtis Young, B.S.,	West Raleigh,	Agr.

SENIOR CLASS.

Graham Hudson Anthony,	Shelby,	M. E.
Bascum Otto Austin,	Charlotte,	E. E.
Clare Russell Bailey,	Chadbourn,	Agr.
Hugh Marcellus Bailey,	Woodleaf,	Agr.
Thomas Levingston Bayne, Jr.,	Manchester,	Agr.
Herman Von Biberstein,	Charlotte,	C. E.
Enos Clarkson Blair,	Raleigh,	Agr.
Victor Winfred Breeze,	Durham,	C. E.
Charles Meekins Brickhouse,	Columbia,	Agr.
James Ramsey Buchanan,	Dillsboro,	E. E.
Harley Wilson Bullard,	Chadbourn, R. 2,	Agr.
Robert Olin Caldwell,	Concord,	Agr.
Walter Graham Caldwell,	Huntersville,	Agr.
Edward Lamar Cloyd,	Lenoir,	M. E.
Edwin Lacy Coble,	Greensboro,	Agr.
David Davies Cox,	Cullowhee,	M. E.
Saint John Cox,	Cullowhee,	M. E.
Leland Miot Craig,	Charlotte,	C. E.
Woodfin Grady Credle,	Swan Quarter, R. 2,	Agr.
Samuel Frederick Davidson,	Swannanoa,	Agr.
John Bartlett Fearing,	Elizabeth City,	Chem.
Karl McAtee Fetzer,	Reidsville,	E. E.

Name.	*Post Office.*	*Course.*
James Fontaine,	Woodsdale,	E. E.
James Roscoe Franck,	Richlands,	Agr.
John George Harvey Geitner, Jr.,	Hickory,	Tex.
Ralph Allison Gill,	Statesville,	E. E.
William Henry Griffin, Jr.,	Goldsboro,	C. E.
John Isaac Handley,	West Raleigh,	Agr.
John Harvey, Jr.,	Snow Hill,	C. E.
William Leon Jewell,	Wilmington,	C. E.
William Tisdale Hurtt,	New Bern,	M. E.
Lacy John,	Lumber Bridge, R. 1,	Agr.
Willis Neal Johnston,	Mooresville,	M. E.
William Manly Jones,	Raleigh,	M. E.
Sir Keith Keller,	Wadesboro,	C. E.
Paul King,	Emporia, Va.,	C. E.
Douglas Allen Leard,	Raleigh,	C. E.
William Dixon Lewis,	Gastonia,	Agr.
William Bennett Little, Jr.,	Wadesboro,	Agr.
Marion Lamar Livermon,	Roxobel,	C. E.
Thomas Robert McDearman,	Rocky Mount,	C. E.
James Edgar McNeely,	Mooresville,	Tex.
Harvey Campbell McPhail,	Mount Olive,	Agr.
Joseph Edgar Michael,	Elon College,	Agr.
Thomas Guy Monroe,	Eagle Springs,	Agr.
Warren LaFayette Moody,	Concord,	Chem.
Frank Bullock Morton,	Townsville,	E. E.
Henry Kollock Nash, Jr.,	Wilmington,	Agr.
Thomas Winston Nicholls,	Edenton,	E. E.
Edgar Byron Nichols,	Mount Airy, R. 3,	M. E.
Fitzgerald Elizur Patton,	Pisgah Forest,	Agr.
Will Robert Patton,	Morganton,	C. E.
Milton Vance Perry,	Durant's Neck,	M. E.
Joseph Jennings Phillips,	Portsmouth, Va.,	C. E.
Fred Davis Poisson,	Wilmington,	Chem.
Tracy Winchester Porter,	Charlotte,	Agr.
William Owen Potter	Cash Corner,	M. E.
Millard Reed Quinerly,	Grifton,	Agr.
John Bartow Rees,	Lincolnton,	E. E.
Thurman Lester Roberson,	Robersonville,	M. E.
Daniel Ernest Roberts,	Red Springs,	Agr.
John Morgan Roberts,	Louisville, Ga.,	Agr.
Joe William Ross,	Fort Mill, S. C.,	Agr.
Emory Pell Rouse,	Lagrange,	E. E.

Name.	*Post Office.*	*Course.*
John Franklin Schenck, Jr.,	Lawndale,	M. E.
William Thomas Shaw, Jr.,	Weldon,	Tex.
Walter Herbert Smith,	Prospect Hill, R. 1,	E. E.
Zeb Whitehurst Taylor,	Tarboro,	E. E.
Daniel Wood Thorp, Jr.,	Rocky Mount,	C. E.
James Richard Townsend,	Greensboro,	C. E.
James Wiggins Watts, Jr.,	Williamston,	E. E.
Edward Howerton Weatherspoon,	Sanford,	E. E.
Owen Zelotes Wrenn,	Durham,	C. E.

JUNIOR CLASS.

Henry Milton Alexander,	Matthews, R. 17,	E. E.
Charles Sidney Andrews,	Kinston,	M. E.
Lewis Carroll Atkisson,	Greensboro,	Tex.
Beverley Moss Blount,	Washington,	M. E.
Ralph Brooks,	Alliance,	Agr.
Joseph Brandon Bruner,	Raleigh,	Agr.
Henry Burleson,	Plumtree,	E. E.
John Cline Carpenter,	Charlotte, R. 12,	C. E.
John Mann Carter,	Washington,	E. E.
Louis Gorham Cherry,	Raleigh,	E. E.
Guy Winston Commander,	Elizabeth City,	Agr.
Henry Bacon Constable,	Charlotte,	Chem.
Milton Lee Correll,	Lumberton,	C. E.
Edward Livingston Cotton,	New London,	M. E.
Raymond Crowder,	Raleigh,	E. E.
Dallas Thornton Daily,	Elizabeth City,	C. E.
Leonidas Polk Denmark,	Raleigh,	C. E.
Charles Patterson Eldridge,	Raleigh,	C. E.
William King Eldridge,	Burkeville, Va.,	M. E.
Archie Arrington Farmer,	Wilson,	E. E.
William Herbert Farmer,	Bailey,	Agr.
Rutledge Hughes Feild,	Raleigh,	Agr.
Aaron Conrad Fluck,	Lexington,	E. E.
William Benjamin Foster,	Winston-Salem,	M. E.
Louis Williams Gardner,	Shelby,	E. E.
Frank Temple Gray,	Cullasaja,	M. E.
John Needham Hackney,	Wilson,	M. E.
James Holmes Haddock,	Richmond, Va.,	Tex.
John Hubbard Hall, Jr.,	Raleigh,	Agr.
Robert Williams Hamilton, Jr.,	Jonesville, S. C.,	Agr.
Russell Peyton Harris,	Louisburg,	Agr.

Name.	*Post Office.*	*Course.*
Henry Mercer Harshaw,	Murphy,	E. E.
James LaFayette Hassell,	Edenton,	Agr.
Harry Benjamin Henderlite,	Raleigh,	C. E.
George Garland Hendricks, Jr.,	Greensboro,	C. E.
Vernon Ray Herman,	Conover, R. 1,	Agr.
David Lee Hooper,	Cullowhee,	M. E.
Herndon Hopkins,	Greensboro,	Agr.
Frank Henry Houck,	Hickory,	M. E.
John Stuart Howard,	Salemburg,	Agr.
Paul Noble Howard,	Kinston,	C. E.
Jesse Frank Huette,	Thomasville,	M. E.
George Linwood Jeffers,	Richmond, Va.,	E. E.
Raymond Allen Jones,	Charlotte,	C. E.
Waverly Fletcher Kilpatrick,	Asheville,	Agr.
Robert Vernon Knight,	Tarboro, R. 1,	Agr.
Fabius Henry Kohloss,	Columbia,	E. E.
Frank Kipp Kramer,	Elizabeth City,	M. E.
Irvin Tracy Lewis,	Gastonia, R. 2,	Agr.
Jesse Webb Lindley,	Siler City,	Agr.
Donald Grattan McArn,	Laurinburg,	E. E.
William Daniel Martin,	Pelham,	M. E.
Sherrod Ervin Menzies,	Hickory,	M. E.
Robert Timberlake Newcomb,	Raleigh,	Agr.
Karl Osborne,	Cleveland Mills,	C. E.
William Victor Pearsall,	Wilmington,	Chem.
Thomas Clayton Pegram,	Asheville, R. 4,	Tex.
Henry Marriott Philips,	Battleboro, R. 2,	Agr.
Arthur Jefferson Phillips, Jr.,	Portsmouth, Va.,	M. E.
John Gay Pinner,	Columbia, R. 1,	Agr.
Robert Avery Plyler,	Monroe, R. 5,	E. E.
Frank Wilson Procter,	Raleigh,	M. E.
Charles Landon Proffitt,	Bald Creek,	Agr.
John Duncan Ray,	Sanford,	Agr.
Chauncey Hardwick Roberts,	Fletcher,	Agr.
Landon Coats Rosser,	Jonesboro,	E. E.
George Garrard Schmidt,	Indianapolis, Ind.,	C. E.
Whiteford Ingersoll Smith,	Asheville,	Tex.
Walter Johnston Smith, Jr.,	Charlotte,	Agr.
Herbert Spencer,	Nat. Soldiers Home, Va.,	Agr.
Wilbur Sumner,	Asheville,	E. E.
Daniel McGilvary Tate,	Norlina,	Agr.

Name.	*Post Office.*	*Course.*
Arthur Lee Teachey,	Wallace,	Agr.
Jesse Ernest Trevathan,	Rocky Mount, R. 1,	Agr.
Clyde Loreine Vann,	Fayetteville,	E. E.
Will Miller Watson,	Swan Quarter,	E. E.
Charles Wright Weaver,	Franklin, R. 1,	M. E.
Buxton White,	Elizabeth City,	Agr.
Frederick Carl Wiggins,	Middleburg,	Chem.
John Rodman Williams,	Sanford,	C. E.
Henry Kollock Witherspoon,	Greensboro,	C. E.
Forest Egan Wysong,	Greensboro,	M. E.

SOPHOMORE CLASS.

Claude Shuford Abernethy,	Hickory,	M. E.
William Crocker Albright,	Mount Airy,	C. E.
Oliver Stanhope Anthony,	Shelby,	E. E.
Joseph Alexander Ardrey,	Fort Mill, S. C.,	M. E.
Charles Vernon Baker,	Raleigh,	C. E.
Fred Allen Baker,	Kings Mountain,	E. E.
Joe Oliver Barbrey,	Clinton,	C. E.
Jere Wilson Bason,	Swepsonville,	Agr.
Marvin Eddleman Beatty,	Charlotte, R. 29,	C. E.
Johnnie Samuel Bennett,	Morehead City,	E. E.
James Shepherd Bonner,	Washington,	E. E.
Clay Dwight Brittain,	Summerfield,	C. E.
James Heber Brooks,	Grifton,	Agr.
Thomas Wetmore Brooks,	Stem,	M. E.
Claudius LeRoy Carlton,	Boykins, Va.,	E. E.
William Roy Cates,	Roxboro,	C. E.
Jay Victor Champion,	Raleigh,	E. E.
Corneil Cyrenius Clanton,	Charlotte,	Chem.
Clete Walton Clark,	Owassa, Ala.,	Agr.
William Shaw Corbitt,	Henderson,	M. E.
Robert Thomas Cottam,	High Point,	M. E.
Sherman Grady Crater,	Cycle,	Agr.
Sidney Mott Credle,	Swan Quarter,	C. E.
Chester Hane Crowell,	Newton,	M. E.
Robert Bruce Donaldson,	Charlotte, R. 8,	Agr.
Archie Jay Doolittle,	Passaic, N. J.,	C. E.
John Alexander Farrior,	Raleigh, R. 4,	Agr.
Matthew Maury Fontaine,	Woodsdale,	E. E.
John Alexander Frazier,	Kings Creek,	C. E.
Zebulon Clifton Gardner,	Shelby, R. 6,	Agr.

Name.	*Post Office.*	*Course.*
Peter Melvin Gilchrist,	Laurinburg, R. 4,	Agr.
Amzi Nealy Goodson,	Concord,	E. E.
Kenneth Lee Greenfield,	Kernersville,	Agr.
William Stephen Haywood,	Mount Gilead,	M. E.
Ernest Percy Heinzerling,	Statesville,	E. E.
Leonard Orr Henry,	Gastonia,	E. E.
Ernest Knox Herman,	Wadesboro,	M. E.
Edgar Allen Hester,	Whiteville,	E. E.
Robert Hugh Hill,	Beaufort,	E. E.
Paul Eugene Hine,	Old Town,	M. E.
Ralph Hinton Hodges,	Washington,	Agr.
Howard Hodnett,	Wake Forest,	M. E.
Thomas Hall Holmes, Jr.,	Goldsboro,	E. E.
Dean Roney Holt,	Graham,	M. E.
John Graier Hudgins, Jr.,	Beaufort,	C. E.
Lona Alvin Jaynes,	Fonta Flora,	M. E.
John LeBon Jenkins,	Charlotte,	E. E.
Sidney Earle Jennette,	Lake Landing,	C. E.
Leander Brownlow Johnson,	Hendersonville,	Chem.
Vernon Junius Johnson,	Hendersonville,	Chem.
Victor Allison Johnston,	Mooresville,	Agr.
Eugene Calhoun Jones,	Raleigh,	Agr.
Rex Livingston Kelly,	Sanford,	E. E.
William Frederick Kendrick,	Charlotte,	M. E.
Woodford Armstrong Kennedy,	Warsaw,	E. E.
William Pendleton Kennedy,	Warsaw,	E. E.
Paul Hanner Kime,	Greensboro,	Agr.
Nathan Sampson Lachicotte,	Waverly Mills, S. C.,	Agr.
John Haywood Lane,	Wilson,	Agr.
Colon Alonzo Ledford,	Casar,	Agr.
Henry Albert Lilly,	Mount Gilead,	Agr.
Thomas Baxter Lilly,	Mount Gilead,	C. E.
Robert Opie Lindsay,	Madison,	Tex.
Prentiss Horace McCall,	Charlotte,	M. E.
William Simpson McKimmon,	Raleigh,	C. E.
James Walter McLeod,	Rowland,	Agr.
Frank Coble McNeill,	Cameron,	C. E.
Robert Edward Madison,	Webster,	E. E.
Pierre Mallett,	Etowah,	M. E.
Willie Edward Marsh,	Aulander,	C. E.
Joseph Henry Mason,	Charlotte,	Tex.
John Daniel Miller,	New London,	C. E.

Name.	*Post Office.*	*Course.*
Tommy Lee Millwee,	Charlotte,	E. E.
Charles Alfred Moore,	Kinston, R. 2,	E. E.
William Fowler Morrison,	Wilmington,	C. E.
Benjamin Franklin Mullen,	Charlotte,	M. E.
Edward Moseby Murray,	Charlotte,	E. E.
Miles Gorrell Myers,	Yadkinville,	Agr.
John Frank Neely, Jr.,	Pineville,	Agr.
David Benjamin Nooe,	Pittsboro,	Agr.
Marshall Fred Ormand,	Kings Mountain,	Agr.
Reid Allison Page,	Biscoe,	Agr.
Lee Parker,	Ahoskie,	C. E.
Rufus Gwyn Parlier,	Ronda,	M. E.
Asa Gray Phelps,	Merry Hill,	M. E.
John Bailey Pridgen,	Elm City,	C. E.
Carl Clawson Proffitt,	Bald Creek,	Agr.
Parker Royall Rand,	Garner, R. 1,	Agr.
Henry Rankin,	Gastonia,	M. E.
Lewis Banks Ray,	Graham,	M. E.
Hugh Calvin Rea,	Matthews,	Agr.
Victor Arthur Rice,	Cleveland, Ohio,	Agr.
Ray Miller Ritchie,	Concord,	Agr.
Philip Austin Roberts,	Red Springs,	C. E.
John Paul Robertson,	Rowland,	Agr.
Zeb Blaine Robinson,	Weaverville,	E. E.
William Haywood Rogers, Jr.,	Raleigh,	C. E.
Lindley Murray Rowe,	Burgaw,	C. E.
Charles Reid Russell,	Denton,	C. E.
Augustine Joseph Russo,	Portsmouth, Va.,	C. E.
David Floyd Sasser,	Goldsboro,	M. E.
Jesse Woodson Saunders,	Reidsville,	E. E.
Orrion Mayburn Schlichter,	Vaughan,	M. E.
Clement Oscar Seifert,	New Bern,	C. E.
Brooks Walker Setzer,	Troutman,	E. E.
Karl Sloan,	Statesville,	C. E.
Bascom Pierce Smith,	Guilford College,	M. E.
Joseph McKay Spears,	Lillington,	C. E.
Benjamin Strauss,	New York, N. Y.,	M. E.
Reuben L. Tatum,	Cooleemee,	E. E.
Alfred Tennyson Taylor,	McCullers,	Agr.
Grover William Underhill,	Knightdale, R. 1,	Agr.
James Hugh Ward,	Macclesfield,	C. E.
Jacob Osborne Ware,	Kings Mountain,	Agr.

Name.	*Post Office.*	*Course.*
George Henderson Webb,	Morehead City,	C. E.
Harry Graves Wharton,	Greensboro,	Agr.
Raymond Benjamin Wheatley,	Beaufort,	C. E.
George Whitson,	Swannanoa,	E. E.
John Bynum Wiggins,	Sunbury,	C. E.
John Franklin Williams,	Bessemer City,	E. E.
John Wilds Wilson,	Johnson City, Tenn.,	Tex.
Noah Rouse Wilson,	Wilsons Mills,	C. E.
James Harvey Withers, Jr.,	Broadway,	Agr.

FRESHMAN CLASS.

James Mason Alexander,	Asheville,	Tex.
Edward Leroy Anderson,	Mars Hill,	M. E.
John Welsford Artz,	Old Fort,	Agr.
George Ganzer Avant,	Wilmington,	E. E.
John William Avera,	Smithfield, R. 1,	Agr.
George Garland Baker,	Washington,	M. E.
Louis William Baker,	Arlington, N. J.,	E. E.
Talmage Baker,	Ahoskie,	M. E.
Bernard Guinn Banner,	Mount Airy,	C. E.
John Robin Baucom,	Raleigh, R. 2,	Agr.
Louis Vivivan Beauregard,	Washington, D. C.,	Chem.
Frederick Neil Bell,	Concord,	E. E.
Willie Locke Bell,	Greensboro,	Tex.
Ralph Purcell Blanton,	Mooresboro,	Agr.
Tyson Yates Blanton,	Mooresboro,	Agr.
James Granville Booker,	Mount Airy,	C. E.
Frederic Jones Bounds, Jr.,	Weldon,	Tex.
David Malthaner Bower,	Lenoir,	E. E.
Ebenezer Erskine Boyce,	Gastonia,	E. E.
James Gaston Boylin,	Wadesboro,	Agr.
Zeb Boyce Bradford,	Huntersville,	Tex.
William Staley Bridges,	Wakefield, R. 1,	C. E.
Vivian LeRoy Brinn,	Swan Quarter,	M. E.
Noah Burfoot, Jr.,	Elizabeth City,	Chem.
Elmer Sides Butner,	East Bend,	E. E.
Zeb Vance Butts, Jr.,	Morehead City,	E. E.
Gordon McGregor Cameron,	Manly,	Agr.
Almon Hill Carter,	Wallace,	Agr.
Marsh Hutzler Chedester,	Asheville,	E. E.
Ernest Sinclair Chesson, Jr.,	Elizabeth City,	Agr.
William Duncan Clark, Jr.,	Owassa, Ala.,	Tex.

Name.	*Post Office.*	*Course.*
Walter Hemby Clark,	Pee Dee,	E. E.
John Edgar Cockerham,	Lowgap,	E. E.
Rodney Lee Coleman,	Wise,	E. E.
John Calhoun Collier, Jr.,	Goldsboro,	M. E.
Clifford Cannon Cooke,	Graham,	C. E.
James Wesley Cooper,	Henderson,	Tex.
Francis Edwin Coxe,	Red Springs,	E. E.
Harry Crawford,	Waynesville,	E. E.
Hilary Herbert Crawford,	Waynesville,	E. E.
Harvey Credle,	Scranton,	Agr.
Paul Bowman Crumpler,	Washington,	E. E.
John Kingsley Culbertson,	Mooresville,	M. E.
Edwin Borden Davis,	Goldsboro,	Agr.
Robert Vernon Davis,	Fremont,	E. E.
William Pressley Davis,	Stovall,	C. E.
Albert George Day,	Trenton, S. C.,	E. E.
Ira Alexander DeArmon,	Charlotte,	Agr.
William Carter Dodson,	Greensboro,	Tex.
Mynar Cecil Donnell,	Greensboro, R. 4,	Agr.
Willis Frank Dowd, Jr.,	Charlotte,	Tex.
Robert McKee Duckett,	Charlotte,	E. E.
Douglas Maxwell Eaton,	Morehead City,	C. E.
Marvin Woodard Edmundson,	Wilson,	Chem.
Osbert Leon Edwards,	Conover,	E. E.
Henry Elliot,	Duke, R. 1,	Agr.
William Henry Elliot,	Thornwall,	Agr.
Arthur Kennedy Evans,	Greenville,	Agr.
Joshua Barnes Farmer, Jr.,	Wilson,	Agr.
Julius Ferderber,	Duquesne, Pa.,	C. E.
Henry Clay Ferebee, Jr.,	Camden,	Agr.
Stephen Scott Ferebee,	Shawboro,	Agr.
Frank Powers Fonvielle,	Warsaw,	C. E.
Harold Clay Foreman,	Elizabeth City,	Agr.
Eugene Dick Foushee,	Greensboro,	Agr.
Marshall Clay Fowler,	Statesville,	E. E.
Daniel Robert Steele Frazier, Jr.,	Kings Creek,	C. E.
Fitzhugh Lee Gammon,	Whitakers,	Agr.
Frederick Carlton Gardner,	Rocky Mount,	C. E.
Charles Stedman Grainger, Jr.,	Wilmington,	E. E.
Lawson Wyatt Grantham,	Newton Grove,	Agr.
Dennis Gray,	Guilford College,	Agr.
John LeRoy Gregson, Jr.,	Elizabeth City,	C. E.

Name.	*Post Office.*	*Course.*
Robert Vance Grindstaff,	Sylva,	M. E.
Owen Haywood Guion, Jr.,	New Bern,	C. E.
Frank Joshua Haight,	Balsam,	E. E.
Carl Rush Harris,	Mount Gilead,	Tex.
John Fleming Harris,	Mapleville,	M. E.
Adolph Theodore Hartmann,	Charlotte,	C. E.
Robert Nelson Hayes,	Southern Pines,	E. E.
Edwin Byron Haynes,	Raleigh,	E. E.
Joseph Bunker Haynes,	Mount Airy,	Agr.
Henry Wardsworth Hayward,	Mount Gilead,	M. E.
John Wade Hendricks,	Cana, R. 2,	Agr.
Nathaniel Maurice Hill, Jr.,	Pittsboro,	Tex.
Bruce Dunston Hodges,	Washington,	C. E.
Edison Parker Holmes,	North Wilkesboro,	E. E.
Edward Holland Holton,	Winston-Salem,	Agr.
Robert Mullen Hooper,	Beaufort,	E. E.
William Ransom Hoots,	Jennings,	Agr.
Richard David House,	Scotland Neck,	Agr.
Frank William Howard,	Bridgeport, Conn.,	C. E.
Herbert Bonner Howie,	Fort Mill, S. C., R. 2,	Agr.
Perry Aden Humphries,	Zebulon,	Agr.
John Douglas Hunt,	Pomona,	Agr.
Thomas Jefferson Ingram,	Wadesboro,	Agr.
John Eli Ivey,	Norwood,	Agr.
Murray Gibson James,	Springer,	Agr.
Horace Lenoir Jeffress,	Canton, R. 2,	Agr.
Fred Duncan Jerome,	Poplar Branch,	E. E.
Marvin Pell Johnson,	Burlington, R. 4,	C. E.
Paul Worthy Johnson,	Raeford,	Agr.
Walter Myatt Johnson,	Chalybeate Springs,	E. E.
Mark Caldwell Johnston,	Newell,	Agr.
James Edwin Jones, Jr.,	High Point,	E. E.
Hilton Craig Joyner,	Aulander,	Agr.
Robert Thomas Kehoe,	New Bern,	M. E.
Paul Preston Kelley,	Sanford,	Agr.
George Elijah Kerlee,	Black Mountain,	E. E.
Henri Earle King,	Wilmington,	Agr.
Frederick Swindell Kluttz,	Concord,	C. E.
George Edward Knox,	Lanvale,	C. E.
Richard Joshua Lake,	North Fork, Va.,	Agr.
George Harold Lawrence,	Hillsboro,	Agr.
William Luther Lawson,	Rougemont,	Agr.

Name.	*Post Office.*	*Course.*
Joseph Lee, Jr.,	Landrum, S. C.,	Agr.
Joseph Raoul Lequenec, Jr.,	Abbeville, La.,	C. E.
Gwyn Lenoir Lillard,	Charlotte,	Tex.
Risden Tyler Bennett Little,	Wadesboro,	Agr.
Needham Herring Loftin,	Mount Olive,	E. E.
William Bishop Lumsden,	Raleigh,	Chem.
James Robert McArthur,	Greenville, R. 6,	Agr.
James Edgar MacDougall,	Amesbury, Mass.,	Chem.
William Owen McDowell,	Scotland Neck,	Tex.
Robert Wissner McGeachey,	Raleigh,	C. E.
Rea McGinn,	Fort Mill, S. C.,	Agr.
Alexander McIver,	Mebane,	M. E.
Robert Spence McLean,	Gastonia,	Tex.
Moran Dorith McLendon,	Morven, R. 2,	Agr.
Jacob Wyatt McNairy,	Lincolnton,	E. E.
Elbert McPhaul,	Red Springs,	E. E.
James Ernest McPhaul,	Shannon,	C. E.
Charles Briggs Malone,	Providence, R. I.,	M. E.
Mark Struve Martenet,	Acme,	Agr.
Watt Martin, Jr.,	Winston-Salem,	M. E.
William Emery Matthews,	Maxton, R. 4,	C. E.
Earle Fleet Mayberry,	Charlotte, R. 29,	C. E.
Morell Battle Maynard,	Kerr,	E. E.
Charles Medford Mease,	Canton,	E. E.
Lawrence Charles Melville,	Clifton, N. J.,	Agr.
Gordon Kennedy Middleton,	Warsaw,	Agr.
Carl Elmer Miller,	Chadbourn,	Agr.
Ewing Stephenson Millsaps,	Statesville,	Agr.
Todd Bowman Misenheimer,	Charlotte,	Tex.
Edwin Joseph Mitchiner,	Wilsons Mills,	C. E.
Samuel John Mitchiner, Jr.,	Garner,	E. E.
James Allen Moir,	Wentworth,	E. E.
Daniel A. Monroe,	Eagle Springs,	E. E.
Charles Milton Morris,	Concord,	Agr.
Francis Scarr Morrison,	Statesville,	Agr.
Zachariah Enniss Murrell, Jr.,	Wilmington,	Agr.
John David Newell,	Warrenton,	C. E.
Stanley Lewis Newman,	West Raleigh,	Agr.
Graham Lewis Newsome,	Ahoskie,	E. E.
Thomas Levi Noe,	Beaufort,	E. E.
Walter Wendell Olive,	Apex,	Agr.
David Adolphus James Orrell,	Rocky Mount,	E. E.

Name.	*Post Office.*	*Course.*
William Marshall Osborne,	Charlotte,	Tex.
Macy Talmage Owen,	Thomasville, R. 4,	Agr.
Emmette Gordon Paddison,	Burgaw,	Agr.
Charles Walter Parker,	Woodland,	Agr.
Walter Leak Parsons, Jr.,	Rockingham,	Tex.
James Carter Perry,	Durants Neck,	E. E.
Julian Hawley Poole,	Jackson Springs,	Agr.
William Weyman Price,	Raleigh,	Chem.
Jack Addison Purefoy,	Asheville,	Agr.
Walter Roscoe Radford,	Cane River,	Agr.
Walter Carl Ray,	Martel, Fla.,	M. E.
David Miller Rea,	Matthews,	C. E.
John Sheppard Reaves,	Jacksonville, Fla.,	Chem.
Joseph Lucius Reed,	Asheville, R. 2,	Agr.
David Folsom Rice,	Hamlet,	E. E.
Wallace Whitfield Riddick,	West Raleigh,	C. E.
Herbert Lester Ritchie,	Concord, R. 2,	Agr.
Wilfred Herndon Robbins,	Raleigh,	Agr.
Horace Bascomb Robertson,	Asheville,	Tex.
James Henry Rogers,	Hurdle Mills,	Agr.
Royal Hobgood Royster,	Oxford,	E. E.
Jennings Bryan Rudisill,	Dallas,	C. E.
Henry Fred Rush,	Raleigh,	Agr.
Oscar Vealie Russell,	Troy,	E. E.
David Morton Saintsing,	Wise,	M. E.
Walter Leak Scales, Jr.,	Rockingham,	M. E.
William Leach Scarboro,	Star,	M. E.
William Kerr Scott,	Haw River, R. 1,	Agr.
Troy Vane Shoulars,	Rich Square, R. 1,	Agr.
Adlai Clingmon Shuford,	Barnardsville,	Agr.
Thomas Park Simmons,	Asheville,	C. E.
James Davis Smith,	Hickory,	Agr.
Lindley Dawson Smith,	Sanford,	E. E.
Evans Crabtree Sparrow,	Lowell, R. 1,	C. E.
John Henry Speas,	East Bend,	Agr.
Walter Henry Spivey,	Rich Square, R. 1,	Agr.
William Barnard Stainback,	Henderson,	E. E.
John Alpheus Stallings,	Durham R. 6,	C. E.
Paul Ernscliffe Stallings,	Concord, R. 6,	Agr.
Charles Whitson Stanford, Jr.,	Teer, R. 1,	Agr.
Henry Jerome Stockard, Jr.,	Raleigh,	Chem.
Reuben Bennett Stotesbury,	Swan Quarter,	Agr.

Name.	Post Office.	Course.
John Henry Sullivan,	Holyoke, Mass.,	Chem.
Louis Joseph Swink,	Fentress, Va., R. 2,	Tex.
Claude Webster Tabor,	Raleigh,	C. E.
John Roy Taylor,	Norwood,	Agr.
Ben Temple,	Danville, Va.,	Agr.
John Simpson Tennent,	Asheville,	C. E.
Parker Gillespie Tenney,	Dubuque, Iowa,	Chem.
Alonzo Thomas, Jr.,	Beaufort,	E. E.
Oswald Jefferson Tillett,	Jarvisburg,	Agr.
Bryan Tilley,	Stem, R. 1,	Agr.
Preston Powell Tucker,	Sandridge, Va.,	Chem.
Ernest Craig Turner,	Mebane,	Agr.
Robert Hurst Turner,	Statesville,	C. E.
Napoleon Bonaparte Tyler,	Rich Square,	Agr.
Leland Francis Valley,	Charlotte,	E. E.
Charles Ernest VanBrocklin,	Syracuse, N. Y.,	C. E.
Laverne Tyson Waddill,	Carthage,	E. E.
Carl Seybath Ward,	Suburb,	Agr.
Lonnie Bascom Ward,	Mocksville, R. 2,	E. E.
Sylvester Hassell Warren,	Hurdle Mills, R. 2,	Agr.
Benjamin Alfred Watkins,	Wadesville,	Agr.
Harry Hyrne Watters,	Wilmington,	E. E.
Lee Curtis Weir,	Kings Mountain,	E. E.
Nathaniel Warren Weldon,	Norlina, R. 1,	Agr.
Paul Webb Wellmon,	Shelby,	Agr.
Lidey Rand Wellons	Smithfield, R. 1,	Agr.
John Henry Wells,	Willard,	C. E.
Fred Murrow West,	Wests Mill,	M. E.
Druid Emmet Wheeler,	Asheville,	Tex.
William Preston White, Jr.,	Hobgood,	E. E.
John Albert Williams,	McColl, S. C.,	E. E.
John Francis Williams, Jr.,	Charlotte,	Chem.
Peter McKellar Williams, Jr.,	Fayetteville,	Agr.
Thomas Henry Williams,	Warrenton,	M. E.
Carl Levering Williamson,	Raleigh,	M. E.
Roy Lee Williamson,	Raleigh,	C. E.
Guy Jennings Winstead,	Roxboro, R. 3,	Agr.
Herman Elton Winston,	Youngsville,	Tex.
Louis Ernest Wooten,	Fountain,	C. E.
Chauncey Marquis Worcester,	Newburyport, Mass.,	Agr.
Robert Cleveland Young,	Asheville,	Agr.

SPECIAL.

Name.	*Post Office.*	*Course.*
David Henry Barlow,	Tarboro,	Drawing and Math.

TWO-YEAR COURSES.

First Year.

Name.	*Post Office.*	*Course.*
John Jarod Adkins, Jr.,	Southport,	M. A.
Carey Len Bell,	Scotland Neck,	Vet.
John Russell Briggs,	Pittsburg, Pa.,	M. A.
Julius Ford Crabtree,	West Durham,	Agr.
Harold Wilson Davis,	Morganton,	M. A.
William Sergeant Dixon, Jr.,	Leasburg,	M. A.
Russell Gant,	Burlington,	Tex.
John William Gilbert,	Suburb,	Vet.
John Thomas Gragg,	Winston-Salem,	Tex.
Perrye Tomlinson Guy,	Statesville,	M. A.
Walter Durham Hampton,	Brevard,	M. A.
Jerry Smith Henry,	Lilesville,	M. A.
William Herbert Hodgin,	Jamestown, R. 1,	Tex.
Wilmer Stroud Hogan,	Hillsboro,	M. A.
Thomas Landon Howard,	Salemburg,	Agr.
John Wesley Hundley,	Jefferson,	M. A.
William White Kerr,	Fort Mill, S. C.,	Tex.
William Joseph Kincaid,	Wilson,	Tex.
Claude White Kipka	Mooresville,	Tex.
Irving Emit Lawrence,	Raleigh, R. 4,	Agr.
Barney Weaver Laws,	Moravian Falls,	M. A.
Henry Grady Lipe,	Matthews,	M. A.
Barney Gunby McHenry,	Monroe, La.,	M. A.
John Davis McLean,	Wagram, R. 1,	M. A.
Otis Gibbs Mann,	Middleton,	M. A.
Thomas Jackson Martin, Jr.,	Pelham,	M. A.
Henry Fairley Monroe,	Laurinburg, R. 2,	Agr.
Frank Lassiter Nixon,	Sunbury, R. 1,	M. A.
Walter Moore Noble,	Selma,	M. A.
William Neal Pharr,	Charlotte,	Tex.
Louis Potts,	Davidson,	Agr.
William Herbert Potts,	Mount Olive, R. 5,	Vet.
Charles Hill Ross,	Morganton,	M. A.
John Scarry,	New Bern,	M. A.
Frank Tate Stowe,	Charlotte, R. 4,	Vet.

Name.	*Post Office.*	*Course.*
Cecil Adrian Swain,	Creswell,	M. A.
Posey Glenn Taylor,	Laurel Springs,	M. A.
William Alfred Tinsley, Jr.,	Stoneville,	M. A.
Henry Herbert Underwood,	Youngsville,	M. A.
Glenn Raymond Ward,	High Point,	Tex.
Herbert Payne Warren,	Spring Hope,	Agr.
Joseph Huske Williams,	Duke, R. 1,	Agr.
William Roy Wolfe,	Bessemer City,	Vet.
Paul Barringer Wysong,	Greensboro,	M. A.
Clarence Arch Young,	Asheville,	Agr.

Second Year.

Sam Adelaid Alexander,	Matthews,	Vet.
James William Brothers,	LaGrange,	Agr.
Clifford Cox,	Richlands,	Vet.
John Thomas Dixon,	Lowell,	Vet.
William DeVane Faison,	Faison,	Vet.
Robert Edward Lawrence,	Statesville, R. 5,	Agr.
Gowan Gales Livengood,	Mocksville, R. 4,	Agr.
Grady Fielden Miller,	Laurel Springs,	Agr.
Sim Aaron Nathan,	Wilmington,	Vet.
Ed Spear Phillips,	Ingalls,	Vet.
Edwin Prentiss Stanton,	Parkton,	Vet.
Aubrey Lance Tarkenton,	Woodard,	Agr.
Henry Thomas Watkins,	Blanche,	Agr.

ONE-YEAR COURSE IN AGRICULTURE.

Name	*Post Office.*
Robert Lee Austin,	Burnt Hill.
James William Brothers,	Lagrange.
Grady Cranford,	Riley's Store.
Edward Norfleet Crews,	Dabney.
William Raiford Ewing,	Manchester.
Franklin Harris Glenn,	Lawndale.
Richard Brewer Josey,	Scotland Neck.
Virginous Claiborne Kilby,	Danville, Va.
Edgar Archie McAuley,	Dunlap.
Dennis Torbet McLawhorn,	Winterville.
Lucius Marvin Massey,	Durham, R. 2.
Job Coy Metts,	Richlands, R. 2.
Evart Winston Miller,	Winfall.
Edward Lee Pitt,	Elm City, R. F. D.

Name.	*Post Office.*
Pearson Jones Poplin,	Norwood, R. 1.
Bernice Langdon Powell,	Warsaw.
Mark Herman Smith,	Greenville, R. 1.
Francis Stevenson Stikeleather,	Taylorsville.
Grigg Thomas Tyson, Jr.,	Greenville.

WORK COURSE—AGRICULTURE.

First Year.

William Monroe Andrews,	Fairmont.
Charles Henry Baugh, Jr.,	Raleigh.
William Ralph Britt,	Garner, R. 1.
Robert Ransom Corpening,	Lenoir.
Lynn Walker Harkey,	Charlotte.
Charles Dickerson Kirkpatrick,	Charlotte, R. 2.
Robert Raymond Morrison,	Concord.
Clarence Lee Ramseur,	Bessemer City.
William Herbert Ross,	Charlotte, R. 1.
William Brown Sample,	Charlotte, R. 1.
Charles Paul Wrenn,	Siler City.

Second Year.

Shuford Gray Adams,	Yadkinville.
Earl Emmette Allison,	Concord.
George Mark Goforth,	Lenoir, R. 4.
Albert Alexander Graves,	Cana.
Albert Walker Massey,	Barium Springs.
William Ransom Middleton,	Garner.
William Arthur Pruitt,	Calvert.
Donald Payne Smith,	Concord.
Robert McKinley Stafford,	Harrisburg, R. 1.
Frank MacAnally Townsend,	Greensboro, R. 4.
Marion Gray Vann,	Fayetteville.
Percy Stanley White,	Greensboro.

WORK COURSE—TEXTILE.

Robert Franks Perkins,	Morganton.
Oscar Harlan Witherspoon,	Catawba, R. 1.

WINTER COURSE IN AGRICULTURE.

Charles Airis Ballentine,	Cardenas.
Roscoe Conkling Barrett,	Carthage.
Roy Allen Baucom,	Raleigh.

Name.	*Post Office.*
Robert Vance Beall,	Potecasi.
Willie Fletcher Beard,	Cedar Creek, R.1.
Lewis Earl Blackman,	High Point.
Bryant Bancroft Capehart,	Ronda, R. 2.
William Hardy Chamblee, Jr.,	Zebulon, R. 2.
Shube Samuel Clark,	Greensboro, R. 1.
James Leonard Craig,	Sanford.
William Burton Crawford,	Statesville.
Benjamin Franklin Crutchfield,	Thomasville.
Grover Willey Dees,	Pikeville.
Ernest Franklin Edwards,	Ronda.
John Brady Felts,	Elkin.
Fred Grady Goodman,	Concord, R. 2.
Robert Sterling Graves,	Yanceyville.
Paul Ballinger Groome,	Greensboro, R. 3.
James Alex Holt,	Sanford.
Willie James Hubbard,	Stedman, R. 1.
John Stephen LeFevre,	Weaverville.
John Pressly Mason,	Kings Mountain.
Horace Parker Nelson,	Mackton, Md.
Percy Finger Pegram,	Ellerbe.
Charles A. Prevost, Jr.,	Mineral Ridge, Ohio.
Green Rea,	Matthews, R. 27.
Joseph William Redmon,	Swannanoa.
Herbert Lester Ritchie,	Concord.
Guy Alexander Shields,	Huntersville, R. 20.
Ralph Calvin Stanton,	Asheville.
Shuford Starnes,	Granite Falls.
Leonidas Layfette Thomas,	Jonesboro.
Harvey Bryan Wadsworth,	Cove City.
Owen Cleoland Wall,	Cooleemee.
Alexander Ernest Waller,	Fair Bluff.

WINTER TEXTILE COURSE.

James Munroe Blue,	Davidson.
William Emmett Ratcliffe,	Raleigh.

MAY SCHOOL FOR TEACHERS.

Juanita Elsie Holt,	Apex, R. 5.
Essie Jane Graham,	Rockingham, R. 3.
Matilda Gray,	Cullasaja.
Annie Hawkins,	Brown Summit, R. 2.

Name.	*Post Office.*
Bettie Caroline Hunter,	Chinquapin, R. 1.
Elizabeth McLaughlin,	Carthage, R. 2.
Newton Carlyle Martin,	Carpenter, R. 2.
Lula Myrtle Moore,	Saxapahaw, R. 1.
Bettie Westbrook,	Princeton, R. 3.
Mary Ann Arnold,	Cameron, R. 2.

SUMMER SCHOOL FOR DEMONSTRATION AGENTS.

AUGUST, 1913.

Name.	*Post Office.*	*County.*
C. R. Hudson,	Raleigh.	Wake.
T. E. Browne,	West Raleigh.	Wake.
A. K. Robertson,	West Raleigh.	Wake.
E. S. Millsaps,	Statesville.	Iredell.
T. D. McLean,	Carthage.	Moore.
Bruce Anderson,	Winston-Salem,	Forsythe.
J. A. Arey,	Elmwood,	Iredell.
J. A. Boone, Jr.,	Lumberton,	Robeson.
Z. V. Blue,	Carthage,	Moore.
G. R. Bennett,	Enfield,	Halifax.
M. A. Bennett,	Jackson Springs,	Montgomery.
J. W. Cameron,	Polkton,	Anson.
W. H. Chamblee, Jr.,	Zebulon,	Wake.
S. E. Coble,	Asheboro,	Randolph.
J. B. Cox,	Jacksonville,	Onslow.
McDonald Davis,	Clinton,	Sampson.
W. H. Evans,	Rich Square,	Northampton.
E. M. Fearington,	Riggsbee,	Chatham.
S. N. Ferguson,	Bladenboro,	Bladen.
J. M. Gray,	Durham,	Durham.
R. W. Freeman,	Salisbury,	Rowan.
G. M. Goforth,	Lenoir,	Caldwell.
R. W. Graeber,	Charlotte,	Mecklenburg.
T. J. Harris,	Louisburg,	Franklin.
A. G. Hendren,	Straw,	Wilkes.
J. J. Hendren,	Chadbourn,	Columbus.
J. H. Henly,	Sanford,	Lee.
J. P. Herring,	Wilmington,	New Hanover.
O. J. Howell,	Goldsboro,	Wayne.
G. F. Hubbard,	Fayetteville,	Cumberland.
Herbert Jenkins,	Aulander,	Bertie.

Name.	*Post Office.*	*County.*
J. W. Johnson,	Mount Airy,	Surry.
J. F. Latham,	Jessama,	Beaufort.
N. A. Layton,	White Oak,	Bladen.
R. L. Lipe,	Richfield,	Stanly.
C. McArtan,	Lillington,	Harnett.
J. E. Meredith,	Thomasville,	Davidson.
C. P. Miller,	Lincolnton,	Lincoln.
R. B. Moore,	Morganton,	Burke.
Zeno Moore,	Whitakers,	Edgecombe.
Jos. A. Morris,	Oxford,	Granville.
W. B. Murrill,	Jacksonville,	Onslow.
F. B. Newell,	Warrenton,	Warren.
J. A. Patterson,	Airle,	Halifax.
I. G. Ross,	Walnut Cove,	Stokes.
N. B. Sewell,	Ahoskie,	Hertford.
A. L. Siler,	Franklin,	Macon.
J. A. Smith,	Mt. Olive,	Wayne.
J. A. Turlington,	Salemburg,	Sampson.
W. H. Turlington,	Duke,	Harnett.
E. C. Turner,	Mebane,	Alamance.
F. S. Walker,	Reidsville,	Rockingham.
E. D. Weaver,	Weaverville,	Buncombe.
J. C. Williams,	Swan Quarter,	Hyde.
P. C. Williams,	Chapel Hill,	Orange.
C. N. Woods,	Cedar Grove,	Orange.

SUMMARY.

By Classes.

Graduate	14
Senior	73
Junior	82
Sophomore	123
Freshman	240
Short Courses:	
Agricultural, 2 years	14
Mechanic Arts, 2 years	24
Textile, 2 years	8
Agricultural, 1 year	19
Agricultural, work, 2 years	23
Veterinary, 2 years	12
Agricultural, winter, 7 weeks	35
Textile, winter, special	2
May School, 2 weeks	10
Special students	1
Textile, work	2
Total	682

By Courses.

Agricultural, including short courses in agriculture and veterinary science	302
Chemical	23
Civil Engineering	101
Mechanical Engineering, including Mechanical Arts	99
Electrical Engineering	114
Textile, including short courses	42
Special students	1
Total	682
Summer School for Demonstration Agents	56

TWENTY-FOURTH ANNUAL COMMENCEMENT.

MAY, 1913.

DEGREES CONFERRED.

BACHELORS OF SCIENCE.

In Agriculture.

Lewis Allen Ammon,
Roger Moore Bailey,
Edwin Dennis Bowditch,
Thomas Alexander Cole,
Roy Durant Goodman,
Riley Weaver Higgins,
Peter Armstrong Holt,
Harvey Langill Joslyn,
Louis Braswell Knight,
Robert Tolar Melvin,
William Timothy Nixon,
John Olan Rankin, Jr.,
Robert Lee Sloan,
Colin George Spencer,
John Brown Steele,
Charles Berryhill Stowe.

In Chemistry.

Gilbert Luther Arthur, Jr.,
Brice Legrier Caldwell,
John Bennett Craven,
Liston Lloyd Dail.

BACHELORS OF ENGINEERING.

In Civil Engineering.

Paul Dexter Davis,
Cicero Fred Gore,
Winston Payne Gwathmey,
Felix Stanton Hales,
Thomas Jasper Hewitt,
Walter Cleary Hopkins,
Douglas Creelman Jeffrey,
Morris Liferock,
Lewis Larkins Merritt,
David Walter Seifert,
William Dudley Simpson,
Francis Clark Smith.

In Electrical Engineering.

Charles Albion Bache,
Amos Baxter Clement,
William Randolph Clements,
Percy Bell Ferebee,
Ernest Judson Jeffress,
James Wright Johnson,
George Edison Kidd,
Robert Sylvanus Mauney,
Thad. Rowland Parrish,
Garland Thomas Rowland,
William Beaver Stover,
Stanton Banks Sykes,
Alvin Chesley Wilson.

In Mechanical Engineering.

Hermon Burke Briggs,
Daniel Burnie Floyd,
Earl Montier Evans,
Samuel Benjamin Howard,
Frank Whiteside McComb.
Thomas Kenneth Mial,
Walter Herbert Parker,
Frank Steed Smith.

In Textile Industry.

Charles Ganzer Hall,
LeRoy Corbett Hand,
Thomas Roy Hart,
Thomas Hector Purcell,
Henry Aubrey Quickel,
Walter Clyburn Taylor.

CIVIL ENGINEERS.

John Leland Becton,
John Davidson Spinks.

MECHANICAL ENGINEERS.

John Harvey Bryan,
Robert Eugene Forbis,
James Alexander Powell.

ELECTRICAL ENGINEER.

William Ransome Phillips.

MASTER OF SCIENCE.

In Chemistry.

William Franklin Pate.

HONORS.

HONORS IN SCHOLARSHIP.

For Four Years.

E. D. Bowditch,
P. D. Davis,
F. S. Hales,
T. J. Hewitt,
M. Liferock,
R. T. Melvin.

FOR 1912-1913.

Senior Class.

L. A. Ammon,
E. D. Bowditch,
H. B. Briggs,
W. R. Clements,
P. D. Davis,
R. D. Goodman,
F. S. Hales,
T. R. Hart,
T. J. Hewitt,
H. L. Joslyn,
G. E. Kidd,
M. Liferock,
R. S. Mauney,
R. T. Melvin,
T. K. Mial,
T. R. Parrish,
H. A. Quickel,
G. T. Rowland,
A. C. Wilson.

Junior Class.

C. R. Bailey,
H. V. Biberstein,
E. C. Blair,
V. W. Breeze,
J. R. Buchanan,
H. W. Bullard,
L. M. Craig,
J. Fontaine,
W. B. Little,
M. L. Livermon,
M. R. Quinerly,
J. B. Rees,
D. E. Roberts,
J. M. Roberts,
J. W. Ross,
W. T. Shaw,
E. W. Waldroup
J. W. Watts.

Sophomore Class.

H. M. Alexander,
B. M. Blount,
J. C. Carpenter,
R. Crowder,
D. Dailey,
L. P. Denmark,
L. A. Doub,
W. K. Eldridge,
R. H. Feild,
A. C. Fluck,
J. H. Hall, Jr.,
R. W. Hamilton, Jr.,
R. P. Harris,
V. R. Hermon,
D. L.Hooper,
J. S. Howard,
G. L. Jeffers,
W. F. Kilpatrick,
F. K. Kramer,
J. E. McNeely,
W. D. Martin,
J. D. Ray,
W. I. Smith,
P. E. Snead,
H. Spencer,
J. E. Trevathan,
B. White.

Freshman Class.

C. S. Abernethy,
F. A. Baker,
J. V. Champion,
A. S. Cline,
S. G. Crater,
S. M. Credle,
J. D. Duval,
K. L. Greenfield,
R. H. Hodges,
E. K. Herman,
L. B. Johnson,
C. J. Pruett,
H. Rankin,
L. B. Ray,
V. A. Rice,
R. M. Ritchie,
K. Sloan,
R. L. Tatum,
G. W. Underhill,
G. H. Webb,
F. E. Wysong.

Two-Year Mechanic Arts.

FIRST YEAR.

F. S. Kluttz,
L. B. Ward.

SECOND YEAR.

D. R. Holt.

Two-Year Course in Agriculture.

R. E. Lawrence,
G. F. Miller.

Work Course in Agriculture.

S. G. Adams,
G. M. Goforth,
W. R. Middleton.

Honors for Punctuality.

S. G. Adams,
T. W. Brooks,
J. R. Buchanan,
A. S. Cline,
J. C. Collier,
R. Crowder,
R. H. Feild,
A. C. Fluck,
J. A. Frazier,
G. M. Goforth,
A. N. Goodson,
D. L. Hooper,
L. John,
L. B. Johnson,
W. A. Kennedy,
J. F. Neely, Jr.,
L. B. Ray,
J. W. Ross,
C. R. Russell,
D. P. Smith,
W. H. Smith,
R. L. Tatum,
J. S. Upton,
M. G. Vann,
J. F. Williams.

REGISTER OF ALUMNI.

Name.	*Degree.*	*Address.*
DURANT STEWART ABERNETHY,	B.E. 1906,	Charlottesville, Va.
Resident Engineer, Southern Railway.		
LEROY FRANKLIN ABERNETHY,	B.Agr. 1905,	Hickory, N. C.
Abernethy Hardware Company.		
NELSON ADAMS,	B.E. 1904,	McColl, S. C.
Farmer.		
HAYWOOD LEWIS ALDERMAN,	B.E. 1904,	Greensboro, N. C.
Division Superintendent in Operating Department, Southern Power Co.		
KEMP ALEXANDER,	B.E. 1900,	Ashboro, N. C.
Superintendent Acme Hosiery Mills.		
NEILY ORMOND ALEXANDER,	B.S. 1912,	Matthews, N. C.
Farmer.		
WILLIAM DAVIDSON ALEXANDER, JR.,	B.S. 1899,	Charlotte, N. C.
Civil and Hydraulic Engineer, and Engineer Mecklenburg Drainage Commission.		
DANIEL ALLEN,	B.S. 1896,	Raleigh, N. C.
Farming and Real Estate.		
GEORGE GILDEROY ALLEN,	B.E. 1906,	Concord, N. C.
Overseer of Carding, Gibson Mfg. Co.		
LESLIE LYLE ALLEN,	B.E. 1900,	Spartanburg, S. C.
Cotton Merchant.		
ROBERT WILSON ALLEN,	B.E. 1893,	Sanford, N. C.
Superintendent of Schools.		
LEWIS ALLEN AMMON,	B.S. 1913,	Escuela, Ariz.
Farmer, Tucson Indian Training School.		
JOHN CAMILLUS APP,	B.S. 1908,	Charleston, W. Va.
Real Estate, Insurance.		
JOHN ALLEN AREY,	B.S. 1909,	Elmwood, N. C.
M.S. 1910. Commissioner of Agriculture of Iredell County.		
GILBERT LUTHER ARTHUR, JR.,	B.S. 1913,	Raleigh, N. C.
Clerk Southern Railway.		
DORSEY FROST ASBURY,	B.S. 1898,	Washington, D. C.
Leading Ordnance Draftsman, U. S. Naval Gun Factory.		
GEORGE PAGE ASBURY,	B.E. 1906,	Washington, D. C.
Engineer, Draftsman, Southern Railway.		
SAMUEL ERSON ASBURY,	B.S. 1893,	College Station, Tex.
M.S. 1896. Assistant State Chemist.		
SYDNEY WOODWARD ASBURY,	B.E. 1904,	Charlotte, N. C.
Heating Engineer and Architectural Draftsman, with Louis H. Asbury. Architect.		

Name.	*Degree.*	*Address.*
Thomas Martin Ashe,†	B.E. 1895,	Raleigh, N. C.
Robert James Avery,	B.Agr. 1905,	Park, Va.
Avery Brothers, Railroad Contractors.		
Robert Kenneth Babington,	B.E. 1910,	Gastonia, N. C.
Engineering Department, Piedmont Telephone and Telegraph Co.		
Charles Albion Bache,	B.E. 1913,	Lynn, Mass.
Testing Department, General Electric Co.		
Oscar Luther Bagley,	B.S. 1905,	Goldsboro, N. C.
Clerk in Union Depot, A. C. L. R. R. Co.		
Eugene Cleveland Bagwell,	B.E. 1904,	Norfolk, Va.
Assistant Engineer, Seaboard Air Line Railway.		
Edward Par Bailey,	B.E. 1904,	Wilmington, N. C.
President Wilmington Iron Works and General Manager Marine Railway Co.		
Roger Moore Bailey,	B.S. 1913,	Elm City, N. C.
Bookkeeper for John L. Bailey.		
William Bailey,	B.E. 1911,	Cheraw, S. C.
Yadkin River Power Co.		
Frank Oscar Baldwin,	B.S. 1908,	Richmond, Va.
Director of Settling Basins and Laboratory, Richmond City Waterworks.		
William Herbert Doughty Banck,	B.E. 1909,	Wilmington, N. C.
Civil Engineer.		
Ira Wilson Barber,	B.S. 1899,	Mount Airy, N. C.
Superintendent Electric Light and Power Plant and Waterworks.		
James Claudius Barber,	B.E. 1904,	Barber, N. C.
Farmer.		
Tollie Chester Barber,	B.E. 1911,	Cliffside, N. C.
Cliffside Mills.		
William Walter Barber,	B.E. 1904,	Marks, Miss.
With Riverside Lumber Co.		
Fletcher Hess Barnhardt,	B.E. 1901,	Phœnixville, Pa.
Assistant Engineer, The Phœnix Bridge Co.		
William Alexander Barrett,	B.E. 1904,	Missoula, Montana.
Electrical Engineer, Missoula Light and Water Co.		
George Francis Bason,	B.E. 1908,	Ampere, N. J.
Drafting Room, Crocker-Wheeler Co.		
Herbert Scandlin Battie,	B.E. 1907,	Philadelphia, Pa.
Resident Engineer, Scofield Eng. Co.		
John Mann Beal,	B.S. 1911,	Agr. College, Miss.
M. S. 1913, Miss. A. & M. Instructor in Botany, Miss. Agricultural and Mechanical College. Plant Pathology work with Miss. Agr. Exp. Station.		
James Claudius Beavers,	B.Agr. 1906,	Lafayette, Ind.
Associate in Soils and Crop Extension, Perdue Agricultural Exp. Station.		

† Deceased.

Name.	*Degree.*	*Address.*
SIDNEY HAMILTON BECK,*	B.S. 1898,	Washington, D. C.
Marine Engine and Boiler Draftsman, Navy Department.		
JOHN LELAND BECTON,	B.E. 1908,	Wilmington, N. C.
C.E., 1913. Civil Engineer.		
HARWOOD BEEBE,	B.E. 1908,	Norwood, N. C.
CHARLES EDWARD BELL,	B.S. 1911,	Raleigh, N. C.
Assistant Food Chemist, N. C. Department of Agriculture.		
NEEDHAM ERIC BELL,	B.S. 1906,	Montgomery, Ala.
Soil Surveyor, State of Alabama.		
WILLIAM OSBORNE BENNETT, JR.,	B.E. 1901,	Maxton, N. C.
Manager Elba Manufacturing Co.		
ROBERT LINN BERNHARDT,	B.S. 1900,	Salisbury, N. C.
Secretary-Manager Salisbury Hardware and Furniture Co.		
LESLIE GRAHAM BERRY,	B.E. 1900	Charlotte, N. C.
Manager Southern Engineering Co.		
JOHN HENDERSON BIRDSONG,	B.S. 1899,	Chicago, Ill.
Chief Chemist and Metallurgist, The National Malleable Castings Co.		
JOE PITTMAN BIVENS,	B.E. 1907,	Charlotte, N. C.
Member of firm of Michael & Bivens, Electrical Construction.		
JAMES ADRIAN BIZZELL,	B.S. 1895,	Ithaca, N. Y.
M.S. 1900. Ph.D. 1903, Cornell Univ. Prof. Soil Technology, N. Y. State College of Agriculture.		
FRED MCCULLOUGH BLACK,	B.E. 1910,	Wilkinsburg, Pa.
Erecting Department, Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa.		
KENNETH LEON BLACK,	B.E. 1906,	Richmond, Va.
K. L. Black & Co., Engineers and General Contractors.		
WILLIAM LAMAR BLACK,	B.E. 1908,	Charlotte, N. C.
Southern Power Co.		
JOHN ISHAM BLOUNT,	B.E. 1895,	Birmingham, Ala.
C.E. 1897. J. I. Blount & Co., and The Blount Specialty Co.		
WILLIAM MORTON BOGART,	B.E. 1903,	Dallas, Tex.
Contracting Engineer, General Fire Extinguisher Co. of Texas.		
ALLISON HODGES BOND,	B.E. 1912,	Salisbury, N. C.
Real Estate, Insurance, Investments.		
THOMAS SAWYER BOND,	B.E. 1910,	Laredo, Tex.
Resident Engineer Texas-Mexican Railway Co. Home Address, Windsor, N. C.		
LESLIE NORWOOD BONEY,	B.E. 1903,	Goldsboro, N. C.
Architect.		
FRED. WILHELM BONITZ,	B.E. 1901,	Wilmington, N. C.
Lawyer, Engineering Department of Standard Oil Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
HENRY EMIL BONITZ,	B.E. 1893,	Wilmington, N. C.
Architect.		
WILLIAM DAVID BOSEMAN,	B.E. 1902,	Rocky Mount, N. C.
Farmer, with R. H. Ricks.		
ZOLLY MOSBY BOWDEN,	B.E. 1901,	Mulberry, Fla.
Electrician, Florida Mining Co.		
EDWIN DENNIS BOWDITCH,	B.S. 1913,	Toecane, N. C.
Farmer.		
ROY BOWDITCH,	B.E. 1910,	Schenectady, N. Y.
Testing Department, General Electric Co.		
ALAN THURMAN BOWLER,	B.E. 1912,	Raleigh, N. C.
Paying Teller, Citizens National Bank.		
ASA GRAY BOYNTON,	B.E. 1908,	Biltmore, N. C.
Civil Engineer, Biltmore Estate.		
CARL RAY BRADLEY,	B.E. 1910,	St. Louis, Mo.
Motor Engineering Department, Wagner Electric Manufacturing Co.		
JAMES WASHINGTON BRAWLEY,	B.S. 1895,	Greensboro, N. C.
Secretary and Treasurer Real Estate and Trust Co.		
JOHN BENJAMIN BRAY,	B.E. 1911,	Raleigh, N. C.
Highway and Municipal Engineer.		
THOMAS JOHNSON BREVARD,*	B.S. 1910,	St. Paul, Minn.
Twin City Transportation Co.		
HERMON BURKE BRIGGS,	B.E. 1913,	Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
BENJAMIN ALEXANDER BROOM,	B.E. 1905,	Sioux City, Iowa.
Designing and Supervising Engineer for Light, Heat and Power Co.		
CECIL DEWITT BROTHERS,	B.E. 1909,	Sao Paulo, S. P., Brazil.
With Brazilian Railways.		
BEDFORD JETHRO BROWN,	B.E. 1901,	Charlotte, N. C.
In Charge of Meter Department, Southern Power Co.		
CLAYTON EDWARD BROWN,	B.E. 1912,	Erlanger, Ky.
Levelman, Cincinnati, New Orleans and Texas Pacific R. R. Co.		
FRANK HAMILTON BROWN,	B.Agr. 1908,	Cullowhee, N. C.
Teacher of Science and Agriculture, Cullowhee Normal and Industrial School.		
JOEL EDWARD BROWN,	B.S. 1911,	Grimes, Cal.
Clerk, Smith Co.		
JAMES HOWARD BROWN,	B.S. 1911,	Kansas City, Mo.
M.S. 1912. Student, Kansas City Veterinary College.		
WILLIAM BACHMAN BROWN,	B.E. 1911,	Glass, N. C.
Interstate Commerce Commission, Railway Valuation.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
STEPHEN COLE BRUNER,	B.S. 1912,	Raleigh, N. C.
Agent, Office of Forest Pathology, Bureau of Plant Industry, U. S. Department of Agriculture.		
THOMAS KINCAID BRUNER,	B.E. 1910,	Nashville, Tenn.
Clerk, Tenn. Central R. R. Co.		
CARNEY JOHN BRYAN,	B.E. 1907,	Panama City, Fla.
Wholesale Fish Dealer.		
JOHN HARVEY BRYAN	B.E. 1908,	Wilkinsburg, Pa.
M.E. 1913. Sales Dept., Westinghouse Electric and Mfg. Co.		
GUY KEDAR BRYAN,*	B.E. 1911,	Jacksonville, Fla.
Civil Engineer, with J. P. Middlemas.		
KIT BRYAN,	B.E. 1911,	Manila, P. I.
Surveyor, Bureau of Lands.		
ELTON ELROY BUCK,	B.E. 1910,	Bridgeport, Conn.
Block Map Department, City Engineer's Office.		
JOSEPH SAMUEL BUFFALOE,	B.S. 1897,	Garner, N. C.
Physician.		
JOEL W. BULLOCK,	B.Agr. 1905,	Dabney, N. C., R. 1.
Farmer.		
WALTER AUSTIN BULLOCK,	B.S. 1895,	Cayey, Porto Rico.
Division Superintendent, Porto Rico-American Tobacco Co.		
JAMES HARRY BUNN,	B.E. 1900,	Henderson, N. C.
Superintendent Henderson Cotton Mills and Croatan Spinning Mills.		
WILLIAM BRYANT BURGESS,	B.E. 1908,	Portsmouth, Va.
Electrical Draftsman, Government Navy Yard, Norfolk.		
WILLIAM ANDERS BUYS,	B.E. 1906,	Belhaven, N. C.
Civil Engineer, The Interstate Cooperage Co.		
VON PORTER BYRUM,	B.E. 1911,	N. Lawndale, Fla.
Operating Engineer Southern Utilities Co. of Jacksonville, Fla.		
BRICE LEGRIER CALDWELL,	B.S. 1913,	Concord, N. C.
With J. C. Willeford Jewelry Co.		
LINDSAY FERGUSON CARLTON,	B.E. 1907,	Pittsburgh, Pa.
Sales Engineer H. W. Johns-Manville Co.		
JOHN SAMUEL P. CARPENTER,	B.E. 1903,	Cherryville, N.C.
Member Board of Directors and Superintendent Melville Manufacturing Co.		
JOHN WILLIAM CARROLL,	B.S. 1897,	Wallace, N. C.
Physician.		
ROBERT HILL CARTER,	B.E. 1907,	La Fundicion, Peru, S. A.
Electrician Cerro De Pasco Mining Co.		
HENRY BROZIER CARTWRIGHT,	B.E. 1905,	Jacksonville, Fla.
Assistant Engineer, Seaboard Air Line Ry.		
HENRY ROY CATES,	B.S. 1911,	Washington, D. C.
U. S. Department of Agriculture, Bureau of Plant Industry. Office of Farm Management.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
JUNIUS SIDNEY CATES,	B.S. 1902,	Richmond, Va.
M.Agr. 1904. Editor Southern Planter.		
WILLIAM MILLER CHAMBERS,	B.E. 1905,	Maben, W. Va.
Auditor, W. M. Ritter Lumber Co.		
MARK HOPKINS CHESBRO,	B.Agr. 1906,	Kelowna, B. C.
Studying Modern Methods of Irrigation as Applied to Horticulture.		
CONNOR CALHOUN CLARDY,	B.E. 1906,	Los Angeles, Cal.
Los Angeles Office, General Electric Co.		
CHARLES EDWARD CLARK,	B.S. 1897,	Hoffman, N. C.
Superintendent Broadacre Farm.		
DAVID CLARK,	B.E. 1895,	Charlotte, N. C.
M.E. 1896; C. E. 1897. Owner and Editor *Southern Textile Bulletin.*		
JAMES DUNCAN CLARK,	B.S. 1906,	Tampa, Fla.
President Peninsular Paper Co. Manager Ingleside Orange Groves.		
JOHN WASHINGTON CLARK,	B.E. 1906,	West Durham, N. C.
B.E. (Tex.) 1907. Superintendent of Erwin Bleaching and Furnishing Plant.		
THORNE MCKENZIE CLARK,	B.E. 1909,	Fayetteville, N. C.
Cashier The Fourth National Bank.		
WALTER CLARK, JR.,	B.E. 1903,	Raleigh, N. C.
Lawyer.		
WILLIAM ALEXANDER GRAHAM CLARK,	B.S. 1897,	Washington, D. C.
M.E. 1899. Commercial Agent U. S. Department Commerce.		
SAMUEL HERBERT CLARKE,	B.E. 1906,	Richmond, Va.
With H. Clarke & Sons.		
HENRY CALEB CLAY,	B.E. 1911,	Great Falls, Mont.
Anaconda Copper Mining Co., Engineering Department.		
WILEY THEODORE CLAY,	B.E. 1906,	West Raleigh, N. C.
M.E. 1909. N. C. College of Agriculture and Mechanic Arts.		
AMOS BAXTER CLEMENT,	B.E. 1913,	Wilkinsburgh, Pa.
Engineering Apprentice, Westinghouse Electric and Mfg. Co.		
WILLIAM RANDOLPH CLEMENTS,	B.E. 1913,	Wilkinsburgh, Pa.
Student Apprentice, Westinghouse Electric and Mfg. Co.		
ROBERT BAXTER COCHRAN,	B.E. 1902,	Norwood, Ohio.
Chief Inspector, Bullock Electric Manufacturing Co.		
ANSON ELIKEM COHOON,	B.S. 1898,	Portland, Oregon.
Forest Supervisor, Forest Service, U. S. Department of Agriculture.		
JOHN ELIOT COIT,	B.Agr. 1903,	Berkeley, Cal.
Professor of Citriculture and Semitropical Pomology, University of California.		
THOMAS ALEXANDER COLE,	B.S. 1913,	Lexington, N. C.
State and County Farm Demonstrator.		
PAUL COLLINS,	B.S. 1901,	New Haven, Conn.
Analytical and Consulting Chemist.		

Name.	*Degree.*	*Address.*
George Washington Corbett, Jr.,	B.E. 1895,	Currie, N. C., R. 2.
Proprietor, Corbett & Corbett, Saw and Planing Mills.		
Summey Crouse Cornwell,	B.E. 1903,	Shelby, N. C.
Cornwell-Hedleston Co., Engineers.		
Charles Edward Corpening,	B.E. 1894,	Lenoir, N. C., R. 3.
Farmer and Lumber Dealer.		
Lewellyn Hill Couch,	B.E. 1908,	Hamlet, N. C.
Superintendent, Yadkin River Power Co.		
Walter Miller Cowles,	B.E. 1909,	Pittsburgh, Pa.
In Charge of Mechanical Dept., Fiat Auto Co., under E. J. Thompson Co.		
David Cox,	B.E. 1894,	Hertford, N. C.
Civil Engineer and Timber Dealer and Estimator.		
Duncan Archibald Cox,	B.S. 1906,	Rowland, N. C.
Secretary-Treasurer and Salesman, Pleasant-Cox Hardware Co.		
William Pescud Craig,	B.S. 1901,	Marion, N. C.
John Bennett Craven,	B.S. 1913,	Chicago, Ill.
Chemist, People's Gas, Light and Coke Co.		
William Lois Craven	B.E. 1901,	York, Pa.
Designer and Estimator, York Bridge Co.		
Charles Lester Creech,	B.S. 1903,	Winston-Salem, N. C.
Sales Manager, J. C. Spach Wagon Works.		
Alexander Doane Cromartie,	B.Agr. 1906,	Garland, N. C.
Farmer; County Agent of Farmers' Coöperative Demonstration Work.		
William Henry Crow,	B.E. 1910,	Monroe, N. C.
Superintendent Water, Light and Power Plant.		
Charles Lee Cruse,	B.S. 1912,	Kansas City, Mo.
Student, Kansas City Veterinary College.		
Felix Gray Crutchfield,	B.E. 1901,	Winston-Salem, N. C.
Superintendent Winston-Salem Construction Co.		
Eugene English Culbreth,	B.E. 1903,	Raleigh, N. C.
Commercial National Bank.		
Hugh McCullom Curran,*	B.S. 1898,	Manila, P. I.
Forestry Service, Philippine Government.		
Liston Lloyd Dail,	B.S. 1913,	Ensley, Ala.
Chemist, Tennessee Coal and Iron Co.		
Edwin Speight Darden,	B.S. 1895,	Stantonsburg, N. C.
Farmer; Bookkeeper for Stantonsburg Supply Co.		
Walter Lee Darden,	B.E. 1903,	Portsmouth, Va.
Chief Draftsman, Seaboard Air Line Railway.		
Joseph Frank Davidson,	B.E. 1909,	Gatun, C. Z., Panama.
George Maslin Davis,	B.E. 1901,	Roanoke, Va.
Draftsman, Mechanical Engineer's Office, N. & W. Ry.		

*Not heard from this year.

Name.	*Degree.*	*Address.*
PAUL DEXTER DAVIS,	B.E. 1913,	Charlotte, N. C.
Facilities Clerk, Southern Bell Telephone and Telegraph Co.		
WILLIAM EARLE DAVIS,	B.E. 1910,	Connelly Sprgs., N. C.
Clerk Connelly Mineral Springs Hotel.		
WILLIAM HENERY DAVIS,	B.E. 1911,	Schenectady, N. Y.
General Electric Co.		
WILLIAM KEARNEY DAVIS,	B.E. 1895,	Marion, S. C.
Superintendent Marion Manufacturing Co.		
CLAUD COUNCIL DAWSON,	B.E. 1908,	Mayesworth, N. C.
Mayes Manufacturing Co.		
THOMAS THEODORE DAWSON,	B.E. 1910,	New Bern, N. C.
New Bern Veneer and Panel Co.		
RALPH CAMPBELL DEAL,	B.E. 1912,	Schenectady, N. Y.
Student, General Electric Co.		
WILLIAM SAMUEL DEAN,	B.E. 1909,	Washington, D. C.
Assistant Cotton Technologist, Bureau of Plant Industry, U. S. Department of Agriculture.		
ERNEST COFIELD DERBY,	B.E. 1912,	Earnest, N. C.
Highway Engineer.		
LOUIS REINHOLD DETJEN,	M.S. 1911,	West Raleigh, N. C.
N. C. Agricultural Experiment Station.		
EDWIN SEXTON DEWAR,	B.S. 1911,	Raleigh, N. C.
Assistant Chemist, North Carolina Department of Agriculture.		
JOSEPH CHARLES DEY,*	B.S. 1895,	Norfolk, Va.
JUNIUS FRANKLIN DIGGS,	B.S. 1903,	Rockingham, N. C.
Planter and Merchant.		
CARLTON O'NEAL DOUGHERTY,	B.E. 1909,	North, S. C.
Farmer.		
MCNEELY DU BOSE,	B.E. 1912,	Barcelona, Lerida, Spain.
Erecting Engineer for Riegos y Fuerza del Ebro, Seros Powerhouse.		
FRED. ATHA DUKE,	B.E. 1909,	Portsmouth, Va.
Civil Engineer, Seaboard Air Line Railway.		
JAMES LEONIDAS DUNN,	B.S. 1910,	Scotland Neck, N. C.
Farmer.		
ALVIN DEANS DUPREE,*	B.E. 1908,	Greenville, N. C.
Manager Insurance Department, Moseley Brothers' Agency.		
RAYMOND ROWE EAGLE,	B.E. 1908,	New Bern, N. C.
Civil Engineer.		
MINNIC LUTHER EARGLE	B.Agr. 1908,	Columbia, S. C.
Real Estate.		
JOHN IVEY EASON,	B.S. 1911,	Stantonsburg, N. C.
Farmer.		

* Not heard from this year.

Name.	Degree.	Address.
ACOB TATUM EATON,†	B.Agr. 1907,	Farmington, N. C.
ILLIAM HUNT EATON,	B.S. 1909,	Raleigh, N. C.
Dairy Experimentalist, N. C. Experiment Station.		
ATTA VANDERION EDWARDS,	B.E. 1906,	Pullman, Wash.
C. E. 1911, Cornell Univ. Prof. of Railroad and Highway Engineering, Washington State College.		
EBA ELDRIDGE,	B.E. 1907,	New York, N. Y.
Secretary Department of Social Betterment, Brooklyn Bureau of Charities.		
IMOTHY ELDRIDGE,	B.E. 1904,	Mount Olive, N. C.
Superintendent Electric Light Plant and Waterworks.		
HEOPHILUS THOMAS ELLIS,	B.E. 1903,	Henderson, N. C.
Farmer.		
ELDON THOMPSON ELLIS,	B.E. 1906,	West Raleigh, N. C.
M.E. 1908. Assistant Professor of Mechanical Engineering, N. C. College of Agriculture and Mechanic Arts.		
EE BORDEN ENNETT,	B.S. 1895,	Cedar Point, N. C.
Superintendent of County Public Schools and Farmer.		
LBERT EDWARD ESCOTT,	B.E. 1906,	Charlotte, N. C.
Secretary and Treasurer, The Mill News.		
ILLIAM CARLYLE ETHERIDGE,	B.Agr. 1906,	Ithaca, N. Y.
M.S. 1908. Graduate Student and Assistant in Cornell University.		
ARL MONTIER EVANS,	B.E. 1913,	Raleigh, N. C.
ENJAMIN BRYAN EVERETT,	B.Agr. 1907,	Palmyra, N. C.
M.S. 1911, University of Wisconsin. Farmer.		
AMES BECKETT EWART,	B.E. 1906,	Harthorne, Ill.
Western Electric Co.		
ALPH RINGGOLD FAISON,	B.S. 1909,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
ILLIAM ALEXANDER FAISON,	B.E. 1909,	Indiana Harbor, Ind.
Superintendent No. 2 Foundry, American Steel Foundries.		
SAAC HERBERT FARMER,	B.E. 1908,	Portsmouth, Va.
Right of Way Engineer, Seaboard Air Line Railway.		
AMES WILLIAM FARRIOR,	B.E. 1904,	Kenansville, N. C.
Physician.		
ILLIAM DOLLISON FAUCETTE,	B.E. 1901,	Portsmouth, Va.
C. E. 1910. Chief Engineer, Seaboard Air Line Railway.		
SAAC HENRY FAUST,	B.E. 1895,	Ramseur, N. C.
Farmer and Contractor.		
ENJAMIN CAREY FENNELL,	B.S. 1898,	Atlanta, Ga.
M.E. 1900. Engineer and Contractor. Also General Manager Paulding County Power Co., of Dallas, Ga.		
AMES LUMSDEN FEREBEE,	B.E. 1902,	Atlantic City, N. J.
Consulting Engineer, T. Chalkley Hatton, Constructing Engineer.		

† Deceased.

Name.	*Degree.*	*Address.*
PERCY BELL FEREBEE,	B.E. 1913,	Washington, D. C.
Transitman, U. S. Forest Service.		
BEBJAMIN TROY FERGUSON,	B.Agr. 1908,	Stantonsburg, N. C.
Farmer and Manager, Dr. S. H. Crocker.		
JOHN DANIEL FERGUSON,†	B.E. 1903,	Bladenboro, N. C.
JOHN LINDSAY FERGUSON,	B.E. 1907,	Culebra, Canal Zone.
Electrical Darftsman, Isthmian Canal Commission.		
NEVIN GOULD FETZER, †	B.S. 1912,	Concord, N. C.
WALTER GOSS FINCH,	B.E. 1905,	Washington, D. C.
Junior Engineer, U. S. War Department.		
WILLIAM WALTER FINLEY,	B.Agr. 1904,	Charlottesville, Va.
Proprietor Win Wilkes Farm.		
DANIEL BURNIE FLOYD,	B.E. 1913,	West Allis, Wis.
Apprentice Allis Chalmers Manufacturing Co.		
FRANK FULLER FLOYD,	B.E. 1893,	Knoxville, Tenn.
Vice-President and Sales Manager, Jellico Coal Mining Co.		
FRANK LINDSAY FOARD,	B.S. 1909,	Salisbury, N. C., R. 7
Farmer.		
RUFUS EUGENE FORBIS,	B.E. 1910,	Charlotte, N. C.
Draftsman, Peter S. Gilchrist, Consulting Engineer.		
HUGH PIERCE FOSTER, †	B.E. 1903,	Person County.
SHIRLEY WATSON FOSTER,	B.Agr. 1906,	San Francisco, Cal.
Entomologist and Manager Insecticide Department, General Chemical Co. of California.		
GEORGE WASHINGTON FOUSHEE,	B.E. 1904,	Greensboro, N. C.
Secretary and Treasurer, Dicks Laundry Co.		
ELIAS VAN BUREN FOWLER,	B.E. 1907,	Darlington, S. C.
Agent Metropolitan Life Insurance Co.		
ROSCOE LOOMIS FOX,	B.E. 1909,	Kansas City, Mo.
Broker.		
FRANCIS MARION FOY, †	B.S. 1899,	Scott's Hill, N. C.
CHARLES DUFFY FRANCKS,	B.E. 1893,	Richlands, N. C.
Superintendent Richlands Graded Schools.		
GEORGE STRONACH FRAPS,	B.S. 1896,	College Station, Tex.
Ph.D., Johns Hopkins Univ. State Chemist of Texas. Chemist Texas Experiment Station. Chemist Texas Feed Control.		
ELMO VERNON FREEMAN,	B.E. 1911,	Charleston, W. Va.
E.E. 1913. Westinghouse Electric Manufacturing Co. Commercial Engineer, The Virginian Power Co.		
PERCY LEIGH GAINEY,	B.Agr. 1908,	Columbia, Mo.
M.S. 1910. Instructor in Botany, University of Missouri.		

† Deceased.

Name.	*Degree.*	*Address.*
EDGAR WILLIAM GAITHER,	B.S. 1904,	Wooster, Ohio.
First Assistant Chemist, Ohio Agricultural Experiment Station.		
JAMES JERVEY GANTT,	B.E. 1910,	Gastonia, N. C.
Assistant City Engineer.		
JUNIUS TALMAGE GARDNER,	B.E. 1908,	Shelby, N. C.
Shelby Insurance and Realty Co.		
OLIVER MAX GARDNER,	B.S. 1903,	Shelby, N. C.
Lawyer.		
CLEMENT LEINSTER GARNER,	B.E. 1907,	Washington, D. C.
United States Coast and Geodetic Survey.		
LEWIS PRICE GATTIS,	B.E. 1909,	Charleston, S. C.
Depot Ticket Agent, A. C. L. and So. Rys.		
EDWARD MOORE GIBBON,	B.E. 1893,	Jacksonville, Fla.
City Engineer for South Jacksonville.		
NICHOLAS LOUIS GIBBON,	B.S. 1897,	Southern Pines, N. C.
General Hardware, Building Material and Auto Specialties.		
SETH MANN GIBBS,	B.E. 1908,	Savannah, Ga.
Resident Engineer, Seaboard Air Line Railway.		
THOMAS FENNER GIBSON,	B.E. 1912,	Newark, N. J.
Draftsman, Passaic Valley Sewerage Commissioners.		
LAMAR CARSON GIDNEY,	B.E. 1903,	Rutherfordton, N. C.
Superintendent Rutherfordton Light and Waterworks.		
RICHARD F. GIERSCH, JR.,	B.E. 1912,	Barcelona, Lerida, Spain.
Erecting Engineer for Riegos y Fuerza del Ebro, Seros Powerhouse.		
LOVIC RODGERS GILBERT,	B.E. 1907,	Raleigh, N. C.
Superintendent Caraleigh Mills Co.		
RANSOM EATON GILL, †	B.E. 1910,	Raleigh, N. C.
ROY JOSEPH GILL,	B.E. 1907,	Manila, P. I.
Surveyor, Insular Government.		
GEORGE WILLIAM GILLETTE,	B.E. 1911,	Wilmington, N. C.
Master Mechanic, Tidewater Power Co.		
MAURICE MORDECAI GLASSER,	B.E. 1908,	Charleston, S. C.
Proprietor Standard Electric Co.		
JOHN HOWARD GLENN,†	B.E. 1903,	Crowder's Creek, N. C.
CHARLES WILLIS GOLD,	B.S. 1895,	Greensboro, N. C.
Treasurer Jefferson Standard Life Insurance Co.		
MOSES HENRY GOLD,	B.E. 1908,	Americus, Ga.
Division Engineer, Seaboard Air Line Railway.		
ROY DURANT GOODMAN,	B.S. 1913,	Concord, R. 2, N. C.
Farmer.		

† Deceased.

Name.	Degree.	Address.

CICERO FRED GORE, B.E. 1913, Weldon, N. C.
Assistant to Superintendent and Engineer Highways, Halifax County.

ALBERT SIDNEY JOHNSTON GOSS, B.E. 1909, Wilson, N. C.
Brett Engineering and Contracting Company.

JOHN DAVID GRADY, B.Agr. 1908, Seven Sprgs., R.1. N. C.
Farmer.

ROBERT WALTER GRAEBER, B.S. 1911, Charlotte, N. C.
County Agent Farmers' Coöperative Demonstration Work.

WILLIAM HAYWOOD GRAHAM, JR., B.E. 1912, Macon, Ga.
District Traffic Chief, Southern Bell Telephone and Telegraph Co.

ROBERT STRICKLER GRAVES, B.E. 1907, Cincinnati, Ohio.
District Meter Specialist, General Electric Co.

CHARLIE POOL GRAY, B.E. 1909, Avon, N. C.
Principal Avon School.

GEORGE PENDER GRAY,* B.S. 1893, Tarboro, N. C.
Commercial Traveler, Read Phosphate Co. of Nashville, Tenn.

JAMES MILLER GRAY, B.S. 1910, Durham, N. C.
Superintendent of Farm Life Schools.

STERLING GRAYDON, B.E. 1905, Charlotte, N. C.
Superintendent Atherton Mills.

ANDREW HARTSFIELD GREEN, JR., B.S. 1909, Raleigh, N. C.
Commercial National Bank.

MARION JACKSON GREEN, B.S. 1896, Charlotte, N. C.
Pattern-maker, The Cole Manufacturing Co.

ARTHUR WYNNS GREGORY,* B.S. 1906, Shanghai, China.
Sales Manager, Tien Tsin Office, British-American Tobacco Co.

PAUL STIREWALT GRIERSON, B.E. 1904, Newport News, Va.
Draftsman, Charles Cory & Son, New York.

JOSEPH PERRIN GULLEY, JR.,* B.E. 1904, Raleigh, N. C.
Traveling Salesman, Federal Gas Fixture Works of Philadelphia.

EMIL GUNTER,* B.E. 1903, Boston, Mass.
Engineering Department, Edison Electric Illuminating Co.

WINSTON PAYNE GWATHMEY, B.E. 1913, Richmond, Va.
City Draftsman.

DORSEY YATES HAGAN, B.E. 1908, Greensboro, N. C.
Surveyor.

FELIX STANTON HALES, B.E. 1913, West Raleigh, N. C.
Instructor Mathematics, N. C. College of Agriculture and Mechanic Arts.

CHARLES GANZER HALL, B.E. 1913, New Bedford, Mass.
Resident Engineer for H. C. Raynes, Inc., Consulting Engineers, of Boston, Mass.

HORACE LESTER HAMILTON, B.E. 1906, Baltimore, Md.
Advertising Manager Electric Division Gas and Electric Co.

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* Not heard from this year.

Name.	*Degree.*	*Address.*
WILLIAM ROY HAMPTON,	B.S. 1909,	Plymouth, N. C.
Owner firm of W. H. Hampton & Son, Inc., Merchants and Bankers.		
LEROY CORBETT HAND,	B.E. 1913,	Henderson, N. C.
Assistant Weaving Department, Henderson Cotton Mills.		
SAMUEL MERRILL HANFF,	B.S. 1900,	Wadesboro, N. C.
Episcopal Clergyman.		
JOHN FREDERICK HANSELMAN,	B.E. 1906,	Richmond, Va.
Mayo Land and Bridge Co.		
GEORGE ROM. HARDESTY,	B.E. 1907,	Goldsboro, N. C.
Chief Engineer, State Hospital.		
PHILIP WILLIAM HARDIE,	B.E. 1907,	Greensboro, N. C.
Surveyor.		
JARVIS BENJAMIN HARDING,	B.E. 1904,	Greenville, N. C.
C.E. 1909.		
ROBERT MCKENZIE HARDISON,	B.E. 1912,	New York, N. Y.
Student, Columbia University.		
NATHAN DAVID HARGROVE,	B.S. 1912,	Richmond, Va.
Manager A. W. Hargrove, Paints and Wall Papers.		
RICHARD HUGH HARPER,	B.S. 1905,	Patterson, N. C.
With Gwyn-Harper Manufacturing Co.		
GEORGE ROLAND HARRELL,	B.S. 1900,	Grasselli, N. J.
The Grasselli Chemical Co.		
JOHN WILLIAM HARRELSON,	B.E. 1909,	West Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
CEBERN DODD HARRIS,	B.S. 1897,	Anchorage, Ky.
Manager Burley Tobacco Manufacturing Co., of Louisville, Ky.		
GORDON HARRIS,	B.E. 1909,	Schenectady, N. Y.
Lighting Engineering Department, General Electric Co.		
THOMAS DEVIN HARRIS,	B.E. 1911,	Raleigh, N. C.
Engineer and Surveyor, State Department of Agriculture. Home Address, Oxford, N. C.		
WILLIAM HENRY HARRIS,	B.E. 1895,	Pawtucket, R. I.
M.E. 1896. Treasurer and Agent, Slater Manufacturing Co.		
THOMAS ROY HART,	B.S. 1913,	Burlington, N. C.
Section Manager, Spinning Room, Aurora Mill.		
HARRY HARTSELL,	B.E. 1912,	Indianapolis, Ind.
Telephone Specialist, Western Electric Co.		
FRANK HAWKS,	B.E. 1910,	Wilmington, N. C.
Draftsman, Atlantic Coast Line R. R.		
EDMUND BURKE HAYWOOD,	B.E. 1910,	Raleigh, N. C.
Assistant to Commissioner of Public Works and City Engineer.		
THOMAS FREDERICK HAYWOOD,†	B.E. 1909,	Trenton, N. C.

† Deceased.

Name.	*Degree.*	*Address.*
JOKTAN LAFAYETTE HEMPHILL,	B.E. 1907,	Schenectady, N. Y.
Engineer, General Electric Co.		
LEONARD HENDERSON,	B.E. 1909,	Whitney, N. C.
With Pierson & Goodrich.		
MAURICE HENDRICK,	B.E. 1908,	Cliffside, N. C.
Overseer Spinning, Cliffside Mills.		
LAWRENCE JAMES HERRING,	B.Agr. 1907,	Wilson, N. C.
Practicing Veterinary Medicine. D.V.S., Kansas City Veterinary College.		
JERE. ISAAC HERRITAGE,	B.E. 1905,	Jacksonville, N. C.
Civil Engineer, John L. Roper Lumber Co.		
THOMAS JASPER HEWITT,	B.E. 1913,	New Bern, N. C.
With U. S. Engineering Department.		
CLARENCE WILSON HEWLETT,	B.E. 1906,	Washington, D. C.
M.A., Ph.D., Johns Hopkins. Assistant Physicist, Department of Research in Terrestrial Magnetism, Carnegie Institution of Washington.		
RUFUS WILLIAMS HICKS, JR.,	B.E. 1910,	New York, N. Y.
Heating and Ventilating Engineer, No. 1 Broadway.		
BASCOMBE BRITT HIGGINS,	B.S. 1909,	Experiment, Ga.
M.S., 1910; Ph.D. 1913, Cornell University. Botanist, Georgia Agricultural Experiment Station.		
LYDA ALEXANDER HIGGINS,	B.S. 1910,	Brookhaven, Miss.
Agent in Dairying, Dairy Division, U. S. Department of Agriculture.		
RILEY WEAVER HIGGINS,	B.S. 1913,	Rutherfordton, N. C.
Farming for Drs. Morris & Biggs.		
JAMES ALLAN HIGGS, JR.,	B.E. 1906,	Knoxville, Tenn.
C.E. 1910. Assistant Engineer, Southern Railway.		
JERE. EUSTIS HIGHSMITH,	B.S. 1897,	Parkersburg, N. C.
Farmer.		
DANIEL HARVEY HILL, JR.,	B.S. 1909,	Charlotte, N. C.
Associate Editor, Southern Textile Bulletin.		
DAVID RAYMOND HINKLE,	B.E. 1911,	Milstead, Ga.
Overseer Spinning, Milstead Mills.		
GUY FRANCIS HINSHAW,	B.E. 1907,	Winston-Salem, N. C.
City Engineer of Winston.		
GEORGE HERBERT HODGES,	B.E. 1904,	Fairchance, Pa.
Superintendent Kyle Mine, H. C. Frick Coke Co.		
LABAN MILES HOFFMAN, JR.,	B.E. 1905,	Dallas, N. C.
WILLIS ASKEW HOLDING,	B.S. 1912,	Mount Pleasant, Tenn.
Chemist, Parker Chemical Co.		
CHARLES BOLLING HOLLADAY,	B.E. 1893,	Wilmington, Del.
E. I. du Pont de Nemours Powder Co.		
PETER ARMSTRONG HOLT,	B.S. 1913,	Graham, N. C.
Office Clerk, L. Banks Holt Manufacturing Co.		

Name.	*Degree.*	*Address.*
WILLIAM NORMAN HOLT,	B.E. 1907,	Norfolk, Va.
Traveling Salesman, The Texas Co.		
BENJAMIN OLIVER HOOD,	B.E. 1901,	New York, N. Y.
Structural Engineer, F. A. Burdett & Co., Consulting Engineers.		
LOUIE LEE HOOD,	B.E. 1910,	Greensboro, N. C.
With Greensboro Music Co.		
WALTER CLEARY HOPKINS,	B.E. 1913,	Ocala, Fla.
District Engineer's Office, A. C. L. R. R., Valuation Survey.		
WAYNE ARINGTON HORNADAY,	B.S. 1909,	Burlington, N. C.
M.S. 1910; D.V. M., Kansas City Veterinary College. Veterinarian.		
JOHN HOWARD,	B.S. 1896,	Middlesboro, Ky.
Attorney at Law.		
JESSE MCRAE HOWARD,	B.E. 1904,	Concord, N. C.
Overseer Dyeing, Gibson Manufacturing Co.		
ROBERT IRVING HOWARD,	B.E. 1904 (Tex.),	Conetoe, N. C.
Civil Engineer.		
SAMUEL BENJAMIN HOWARD,	B.E. 1913,	Raleigh, N. C.
Surveyor, with John B. Bray, Civil Engineer.		
RALPH WILKINSON HOWELL,	B.S. 1912,	Belhaven, N. C.
Manager Belhaven Ice and Light Plant.		
BRANTON FAISON HUGGINS,	B.E. 1904,	Macon, Ga.
Salesman, Gresham Manufacturing Co., of Griffin, Ga.		
HENRY ALLEN HUGGINS,	B.S. 1900,	Wilmington, N. C.
Bookkeeper, George W. Huggins, Jeweler.		
CHRISTOPHER MILLER HUGHES,	B.E. 1895,	Richmond, Va.
B.S. 1899. Wholesale Lumber Dealer.		
LLOYD RAINEY HUNT,	B.E. 1905,	Lexington, N. C.
Superintendent Lexington Light and Water Department.		
HILL MCIVER HUNTER,	B.E. 1904,	Greensboro, N. C.
Purchasing Agent White Oak Mills, Proximity Print Works, Proximity Mills.		
MALCOLM BEALL HUNTER,	B.E. 1895,	Charlotte, N. C.
President Acme Plumbing and Heating Co.		
JOHN WILLIAM IVEY,*	B.E. 1909,	Dublin, Ga.
Central of Georgia Railway Co.		
WILLIAM COLBERT JACKSON,	B.S. 1896,	Wake Forest, N. C.
Farmer.		
ERNEST JUDSON JEFFRESS,	B.E. 1913,	Raleigh, N. C.
Carolina Light and Power Co.		
DOUGLAS CREELMAN JEFFREY,	B.E. 1913,	Buffalo, N. Y.
Topographer, Canadian Pacific Railway.		
EUGENE COLISTUS JOHNSON,	B.E. 1903,	Ingold, N. C.
Sawmilling and Farming.		

*Not heard from this year.

Name.	*Degree.*	*Address.*
JAMES WRIGHT JOHNSON,	B.E. 1913,	Lynn, Mass.
Engineering Student, General Electric Co.		
W. F. R. JOHNSON,	B.E. 1909,	Dillon, S. C.
Firm of Johnson & Johnson, Civil Engineers.		
ALBERT CARL JONES,	B.Agr. 1907,	High Point, N. C.
D.V.S., Kansas City Veterinary College. Veterinarian, Meat and Milk Inspector.		
FREDERICK JOHN JONES,	B.E. 1909,	Louisville, Ky.
Assistant Engineer, Construction Department, Louisville and Nashville R. R. Home Address, New Bern, N. C.		
GARLAND JONES, JR.,	B.S. 1900,	Raleigh, N. C.
Oil Chemist, State Department of Agriculture.		
ROBERT FRANK JONES,	B.E. 1910,	Wade, N. C.
Assistant Resident Engineer, Atlantic Coast Line R. R.		
WILLIAM WHITMORE JONES,	B.E. 1907,	Franklin, N. C.
Manager Franklin Telephone and Electric Co.		
CLYDE RAYMOND JORDAN,	B.E. 1910,	Currie, N. C.
Owner and Operator of Lumber Plant.		
HARVEY LANGILL JOSLYN,	B.S. 1913,	Vanceboro, N. C.
Instructor in Agriculture, Craven County Farm Life School.		
JOHN GORDON KELLOGG,	B.S. 1912,	Brown Summit, N. C.
Teacher of Agriculture and Science, Monticello High School.		
MARTIN KELLOGG,	B.Agr. 1901,	Sunbury, N. C.
Farmer.		
CLYDE BENNETT KENDALL,	B.S. 1897,	Washington, D. C.
Topographer, U. S. Geological Survey.		
ALPHEUS ROUNTREE KENNEDY,	B.S. 1898,	Quincy, Mass.
Ship Draftsman, Fore River Shipbuilding Co.		
JAMES MATTHEW KENNEDY,	B.E. 1903,	Raleigh, N. C.
Architect.		
SYDNEY G. KENNEDY,	B.S. 1897,	Sanford, Fla.
Shop Foreman, Atlantic Coast Line R. R.		
ARTHUR TEMPLETON KENYON,*	B.E. 1905,	Bradley Beach, N. J.
WILLIAM KERR,	B.S. 1904,	Hayden, N. M.
M.S. 1912, V. P. I. Farmer.		
GEORGE EDISON KIDD,	B.E. 1913,	Schenectady, N. Y.
General Electric Co. Home Address, Paw Creek, N. C.		
LUTHER HILL KIRBY,	B.E. 1910,	Manila, P. I.
Civil Engineer, Bureau of Lands.		
SAM JONES KIRBY,	B.S. 1912,	Washington, N. C.
Professor of Agriculture and Science, Washington Collegiate Institute. Home Address, Selma, N. C.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
WILLIAM FRANKLIN KIRKPATRICK,	B.E. 1904,	Storrs, Conn.
B.Agr., 1905. Professor of Poultry Husbandry, Conn. Agricultural College.		
JOSEPH LAWRENCE KNIGHT,*	B.S. 1897,	Dewey, Fla.
Pas Manufacturing Co., Naval Stores.		
LOUIS BRASWELL KNIGHT,	B.S. 1913,	Tarboro, N. C.
Farmer.		
STARR NEELY KNOX,	B.E. 1905,	Charlotte, N. C.
Assistant Engineer, Southern Railway Co.		
WILLIAM GRAHAM KNOX,	B.S. 1906,	New York, N. Y.
Assistant Research and Development Laboratory, Western Electric Co.		
JAMES HERRITAGE KOONCE,†	B.E. 1905,	Richlands, N. C.
LAFAYETTE FRANCK KOONCE,	B.Agr. 1907,	Raleigh, N. C.
D.V.M. 1909, Kansas City Veterinary College. Veterinary Surgeon.		
HERBERT WILLIAM KUEFFNER,	B.E. 1908,	Perry, Iowa.
Resident Engineer, Chicago, Milwaukee and St. Paul R. R.		
FREDERICK CREECY LAMB,	B.S. 1898,	El Paso, Tex.
Health Office (Chemist).		
CLAUDE MILTON LAMBE,	B.E. 1908,	Raleigh, N. C.
Civil Engineer, Construction Department, Carolina Power and Light Co.		
CARL JOSHUA LAMBETH,	B.E. 1912,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
BENNETT LAND, JR.,	B.E. 1903,	Tampa, Fla.
Division Engineer, Seaboard Air Line Railway.		
JOHN THOMAS LAND,	B.E. 1903,	Jacksonville, Fla.
Chief Engineer, Carpenter-O'Brien Co.		
MARK CLINTON LASITTER,	B.E. 1910,	Snow Hill, N. C.
Civil Engineer, with Southern Drainage and Construction Co.		
JAMES EDWARD LATHAM,	B.S. 1909,	Manila, P. I.
Agricultural Instructor, Bureau of Agriculture, San Fernando, Pamp.		
CHARLES EDWARD LATTA,*	B.E. 1908,	Raleigh, N. C.
CURTIS WILLIAMS LEE,	B.E. 1912,	Monroe, N. C.
General Manager, Monroe Manufacturing Co.		
EUGENE TALMAGE LEE,	B.E. 1910,	Dunn, N. C.
MORRIS LIFEROCK,	B.E. 1913,	Cove Creek, N. C.
Inspector, U. S. Engineering Service.		
JESSE JULIAN LILES,	B.E. 1901,	Pittsburgh, Pa.
Salesman, Power and Mining Department, General Electric Co.		
HENRY MARVIN LILLY,	B.E. 1905,	Raeford, N. C.
Civil Engineer.		

† Deceased.
* Not heard from this year.

Name.	*Degree.*	*Address.*
ERNEST ERWIN LINCOLN,	B.E. 1904,	Phœnixville, Pa.
Draftsman, The Phœnix Bridge Co.		
DAVID LINDSAY,	B.E. 1908,	Draper, N. C.
Assistant Superintendent German-American Co.		
JOHN HENRY LITTLE,	B.E. 1908,	Philadelphia, Pa.
Salesman, General Electric Co.		
ULPHIAN CARR LOFTIN,	B.S. 1910,	Audubon Park, New Orleans, La.
Bureau of Entomology, U. S. Department of Agriculture.		
RALPH LONG,	B.S. 1909,	Greensboro, N. C.
Salesman, Liggett & Myers Tobacco Co.		
LOUIS EDGAR LOUGEE,*	B.S. 1907,	Pittsburgh, Pa.
Jones & Laughlin Steel Co.		
LEWIS OMER LOUGEE,	B.E. 1901,	Pittsburgh, Pa.
Civil and Mining Engineer. Member firm George S. Baton & Co.		
THOMAS PINKNEY LOVELACE,	B.E. 1912,	Charlotte, N. C.
Foreman, Department of Maintenance, Southern Power Co.		
JOE POINDEXTER LOVILL,.	B.E. 1906,	Mount Airy, N. C.
GEORGE LAFAYETTE LYERLY,	B.E. 1908,	Hickory, N. C.
Manager and Partner, Shuford Hardware Co.		
LIPSCOMBE GOODWIN LYKES,	B.E. 1905,	Havana, Cuba, Tampa, Fla., Galveston, Tex.
Vice-President Lykes Brothers, Inc.		
THOMPSON MAYO LYKES,	B.E. 1906,	Tampa, Fla.
Secretary and Treasurer The Lykes Co. Secretary Tampa Packing Co.		
GEORGE GREEN LYNCH, JR.,	B.E. 1905,	Wilmington, N. C.
Draftsman, Atlantic Coast Line R. R.		
ALBERT SYDNEY LYON,	B.S. 1899,	Rocky Mount, N. C.
Superintendent Rocky Mount Public Works.		
EDMOND SHAW LYTCH,	B.E. 1903,	Laurinburg, N. C.
Partner, Laurinburg Machine Co.		
WILLIAM MCNEIL LYTCH,	B.E. 1893,	Laurinburg, N. C.
Partner, Laurinburg Machine Co.		
FRANK WHITESIDE MCCOMB,	B.E. 1913,	Hickory, N. C.
Dairyman.		
HENRY KREIGER MCCONNELL,	B.S. 1907,	Louisville, Ky.
Assistant Chemist, Kentucky Tobacco Products Co.		
EUGENE RICHARD MCCRACKEN,	B.E. 1911,	Graham, N. C.
FRANK NEELY MCDOWELL,	B.S. 1910,	West Raleigh, N. C.
Assistant in Soil Work, N. C. Experiment Station.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
James Edward McGee,	B.E. 1912,	Rosemary, N. C.
With Rosemary Manufacturing Co.		
Malcolm Roland McGirt,	B.Agr. 1905,	Winston-Salem, N. C., R. 1.
Dairying for P. H. Hanes.		
John Fairly McIntyre,	B.E. 1904,	Laurinburg, N. C.
Farmer.		
Walter Hoge McIntyre,	B.S. 1905,	Knoxville, Tenn.
Soil Chemist, Agricultural Experiment Station, University of Tennessee.		
Samuel Christopher McKeown,	B.E. 1895,	Sumter, S. C.
Chief Engineer, Sumter Electrical Co.		
Charles McKimmon, Jr.,	B.S. 1911,	Ensley, Ala.
Chemist, Tennessee Coal and Iron Co.		
James McKimmon,	B.E. 1904,	Raleigh, N. C.
McKimmon & Thomas, Real Estate and Insurance.		
John Luther McKinnown,	B.Agr. 1902,	Laurinburg, N. C.
Farmer.		
James William McKoy,*	B.E. 1893,	Black Mountain, N.C.
Civil Engineer and Merchant.		
Horace Smith McLendon,	B.Agr. 1906,	Wadesboro, N. C.,R.1.
Farming.		
Lennox Polk McLendon,	B.S. 1910,	Durham, N. C.
Lawyer.		
Walter Jones McLendon, Jr.,	B.S. 1897,	Knoxville, Tenn.
President Capitola Manufacturing Co. of Marshall, N. C., and President Prendergast Cotton Mills of Prendergast, Tenn.		
Oscar Franklin McNairy,	B.E. 1907,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Ry. Home Address, Greensboro, N. C.		
Samuel Huxley McNeely,	B.E. 1909,	Pittsburgh, Pa.
Commercial Engineer, Allis Chalmers Co.		
Charles Harden McQueen,	B.E. 1901,	Boston, Mass.
Inspector Bitulithic Pavements, Warren Brothers Co.		
Neill McQueen,	B.E. 1912,	Atlanta, Ga.
Superintendent of Machinery, Exposition Cotton Mills.		
Samuel Macon Mallison,	B.E. 1909,	Washington, N. C.
Hardware Business.		
Carroll Lamb Mann,	B.S. 1899,	West Raleigh, N. C.
C.E. 1906. Civil Engineer and Professor of Railroad Engineering, N. C. College of Agriculture and Mechanic Arts.		
Louis Henry Mann,	B.E. 1900,	Washington, N. C.
Dentist.		

*Not heard from this year.

Name.	*Degree.*	*Address.*
WALTER RAY MANN,	B.S. 1912,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
WILLIAM LEAKE MANNING,	B.E. 1910,	Rosemary, N. C.
Rosemary Manufacturing Co.		
CLARENCE TALMAGE MARSH,	B.E. 1908,	Fort Adams, R. I.
First Lieutenant, Coast Artillery Corps, U. S. A.		
WILLIAM ROYDAN MARSHALL,	B.E. 1909,	New York, N. Y.
Salesman, Westinghouse Machine Co., of East Pittsburg, Pa.		
JACOB LEE MARTIN,	B.E. 1911,	Marathon, Fla.
Engineering Department, Florida East Coast Railway. Home Address, Graham, N. C.		
RALPH CECIL MASON,	B.S. 1909,	Harrellsville, N. C.
Farmer.		
ARTHUR BALLARD MASSEY,	B.S. 1909,	Auburn, Ala.
Pathologist, Alabama Polytechnic Institute.		
WALTER JEROME MATTHEWS,	B.E. 1893,	Goldsboro and Kinston, N. C.
Contractor and Builder.		
ROBERT SYLVANUS MAUNEY,	B.E. 1913,	Pittsfield, Mass.
Electrical Testing Department, General Electric Co.		
RAYMOND MAXWELL,	B.E. 1906,	Seven Springs, N. C.
Owner and Proprietor Seven Springs Hotel.		
MELVIN SOLOMON MAYES,	B.E. 1910,	Stem, N. C.
Stem Mercantile Co.		
FRANK THEOPHILUS MEACHAM,	B.S. 1893,	Statesville, N. C.
M.S. 1894. Superintendent Experiment Station, U. S. Department of Agriculture.		
EUGENE FRANKLIN MEADOR,	B.E. 1907,	Danville, Va.
With Virginia City Motor Co.		
ROBERT TOLAR MELVIN,	B.S. 1913,	White Oak, N. C.
Farmer.		
HENRY BASCOM MERCER,	B.E. 1912,	Portsmouth, Va.
Assistant Right of Way Engineer, Seaboard Air Line Railway.		
LEWIS LARKINS MERRITT,	B.E. 1913,	Wilmington, N. C.
Surveyor, U. S. Engineer Department.		
REPTON HALL MERRITT,	B.S. 1897,	Raleigh, N. C.
Secretary-Treasurer Powell & Powell, Inc., Coal, Ice, and Wood.		
ROBERT GRAHAM MEWBORNE,	B.S. 1896,	Louisville, Ky.
Chemist, Kentucky Tobacco Product Co.		
BENNETT TAYLOR MIAL,	B.E. 1907,	Philadelphia, Pa.
Manager of Erection, Belmont Iron Works.		
THOMAS KENNETH MIAL,	B.E. 1913,	Wilkinsburg, Pa.
Westinghouse Electric and Manufacturing Co., of Pittsburg, Pa.		

Name.	*Degree.*	*Address.*
FRANK CURTIS MICHAEL,	B.E. 1907,	Charlotte, N. C.
Electrical Engineering and Construction.		
DAVID JOHN MIDDLETON,	B.Agr. 1908,	Warsaw, N. C.
Farmer.		
JOSEPH ALFRED MILLER, JR.,	B.E. 1904,	Brevard, N. C.
Manager Miller Supply Co.		
WALKER MOREHEAD MILLNER,*	B.E. 1909,	Spray, N. C.
Assistant Superintendent, Rhode Island Mills Co.		
JOHN MAPLE MILLS,	B.E. 1907,	Raleigh, N. C.
Half Partner and Manager Bland Hotel Cafe.		
SIMON TURNER MITCHINER,	B.E. 1912,	Milwaukee, Wis.
International Harvester Co.		
BENJAMIN FRANKLIN MONTAGUE,	B.E. 1909,	Johnson City, Tenn.
Draftsman, Carolina, Clinchfield and Ohio Railway.		
HENRY STARBUCK MONTAGUE,	B.S. 1907,	Agr'l College, Miss.
Assistant Chemist, Mississippi State Laboratory.		
LEON DAVIS MOODY,*	B.E. 1910,	Charleston, S. C.
Chief Engineer, Interstate Chemical Corporation.		
EUGENE BOISE MOORE,	B.E. 1910,	Toledo, Ohio.
Manager Toledo Sales Office, Allis Chalmers Manufacturing Co.		
LACY MOORE,	B.E. 1906,	Washington, D. C.
Assistant Engineer, Southern Railway.		
JAMES OSCAR MORGAN,	B.Agr. 1905,	College Station, Tex.
M.S.A. 1907, Ph. D. 1909, Cornell University. Professor of Agronomy, Texas A. and M. College.		
ROBERT LEE MORGAN,†	B.E. 1910,	Silver City, N. M.
JESSE JOHN MORRIS,	B.E. 1903,	Weeksville, N. C.
Farmer and County Surveyor.		
WILLIAM FLAUD MORRIS,	B.E. 1909,	Lillington, N. C.
Assistant Superintendent Lillington Oil Mill Co.		
JOSEPH GRAHAM MORRISON,	B.Agr. 1906,	Stanley, N. C.
Farmer.		
ROBERT HALL MORRISON,	B.E. 1900,	Salisbury, N. C.
President Machinery Supply Co.		
ROBERT LEE MORRISON,	B.E. 1911,	Brigham City, Utah.
Civil Engineer, Phœnix Construction Co.		
JOHN LIGHTFOOT MORSON,	B.E. 1907,	Jacksonville, Fla.
Civil Engineer, Seaboard Air Line Railway.		
WILLIAM FIELD MORSON,	B.E. 1904,	Star, N. C.
Resident Engineer, Raleigh, Charlotte and Southern Railway Co.		

† Deceased.
* Not heard from this year.

Name.	*Degree.*	*Address.*
LAURIE MOSELEY,	B.E. 1902,	Greensboro, N. C.,
Thompson & Moseley, Inc., Contractors.		
VASSAR YOUNG MOSS,*	B.E. 1902,	Canonsburg, Pa.
Draftsman, Fort Pitt Bridge Works.		
HARRY YOEMANS MOTT,	B.S. 1910,	Mooresville, N. C.
Farmer.		
JAMES RICHARD MULLEN,	B.S. 1912,	Raleigh, N. C.
Assistant Chemist, N. C. Department of Agriculture.		
LINDSLEY ALEXANDER MURR,	B.E. 1905,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
GARLAND PERRY MYATT,	B.S. 1905,	Brooklyn, N. Y.
Works Chemist, Chas. Pfizer & Co.		
O'KELLY W. MYERS,	B.S. 1899,	Brooklyn, N. Y.
Assistant Engineer, Board of Water Supply, City of New York.		
JESSE CLARENCE MYRICK,	B.E. 1906,	Balboa, C. Z.
Electrical Foreman, Isthmian Canal Commission.		
LEON ANDREWS NEAL,	B.E. 1904,	Roanoke, Va.
Resident Engineer, Virginia Iron, Coal and Coke Co.		
WILLIAM MCCORMICK NEALE,	B.E. 1910,	Greenville, S. C.
Chief Draftsman, American Machine and Manufacturing Co.		
CHARLES MCKEE NEWCOMB,	B.E. 1912,	Erlanger, Ky.
Draftsman, Cincinnati, New Orleans and Texas Pacific Railway.		
CHARLES ARTHUR NICHOLS,	B.E. 1902,	Muskogee, Okla.
Manager Third Street Grocery Co.		
CHARLES FRANKLIN NIVEN,	B.Agr. 1906,	Clemson College, S. C
Assistant Professor of Horticulture, Clemson College.		
LOLA ALEXANDER NIVEN,	B.Agr. 1906,	Atlanta, Ga.
Editor Orange Judd Southern Farming.		
WILLIAM TIMOTHY NIXON,	B.S. 1913,	Durham, N. C., R. 3.
Assistant Director County Farm Life School.		
LEWIS MILTON ODEN,	B.Agr. 1906,	Raleigh, N. C.
THOMAS JEFFERSON OGBURN, JR.,	B.E. 1906,	Richmond, Va.
Everett-Waddey Co.		
ALBERT HICKS OLIVER,	B.S. 1897,	Mount Olive, N. C.
Farmer.		
SAMUEL LOFTIN OLIVER,	B.E. 1909,	Mount Olive, N. C.
Electrical Contractor and Engineer.		
JAMES ELWOOD OVERTON,	B.Agr. 1907,	Ahoskie, N. C.
Traveling Grader, Inspector and Peanut Buyer for American Peanut Corporation.		
DAVID STARR OWEN,	B.E. 1903,	Savannah, Ga.
General Superintendent Atlantic Turpentine and Refining Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
EDWIN BENTLEY OWEN,	B.S. 1898,	West Raleigh, N. C.
Registrar, N. C. College of Agriculture and Mechanic Arts.		
CHARLES WASHINGTON OWENS,	B.E. 1912,	Savannah, Ga.
Office Engineer of Roadway, Atlantic Coast Line Railroad. Home Address, Walstonburg, N. C., R. 1.		
JOHN ALSEY PARK,	B.E. 1905,	Raleigh, N. C.
Publisher The Raleigh Times.		
B. MOORE PARKER	B.S. 1898,	West Raleigh, N. C.
Assistant Professor Textile Industry, N. C. College of Agriculture and Mechanic Arts.		
CLYDE ESTER PARKER,	B.S. 1906,	Raleigh, N. C.
Firm of Parker Bros. & Co., Cotton Brokers and Merchants.		
EUGENE LEROY PARKER,	B.S. 1899,	Mt. Pleasant, Tenn.
Chemist and Manager, E. L. Parker & Co.		
JOHN HARVEY PARKER,	B.E. 1903,	New Bern, N. C.
Burrus & Parker, Inc.		
JAMES LAFAYETTE PARKER,	B.E. 1902,	New York, N. Y.
Assistant Engineer, Herbert C. Keith, Consulting Engineer.		
JULIUS MONROE PARKER,	B.E. 1909,	Nashville, Tenn.
Civil Engineer, Louisville and Nashville Railway Co.		
THOMAS FRANKLIN PARKER,	B.Agr. 1907,	Rio Piedras, Porto Rico.
M.S. 1908. General Supervisor of Agricultural Education of Porto Rico.		
WALTER HERBERT PARKER,	B.E. 1913,	Wilkinsburg, Pa.
Technical Apprentice, Westinghouse Machine Co.		
FRED MAYNARD PARKS,	B.E. 1907,	Wilkinsburg, Pa.
Electrician, Westinghouse Electric and Manufacturing Co.		
THADDEUS ROWLAND PARRISH,	B.E. 1913,	Berkeley, Cal.
Jno. W. Mackay, Jr., Fellow in Electrical Engineering, Univ. of California.		
JOHN GILBERT PASCHAL,	B.E. 1909,	Lillington, N. C.
Lumber Manufacturer.		
ARTHUR LEE PASCHALL,	B.Agr. 1907,	San Simon, Ariz.
Farmer.		
WILLIAM FRANKLIN PATE,	B.S. 1901,	Raleigh, N. C.
M.S. 1913. Soil Test, Division of Agronomy, N. C. Dept. of Agriculture.		
MANN CABE PATTERSON,	B.E. 1895,	Durham, N. C.
ROBERT DONNELL PATTERSON,	B.S. 1894,	Chase City, Va.
M.S. 1898. President The First State Bank.		
WILLIAM JOEL PATTON,	B.E. 1904,	Dallas, Texas.
Electrician.		
CHARLES PEARSON,	B.E. 1894,	Lagrange, Ga.
Member of firm, General Engineering Construction Co., General Contractors.		

Name.	*Degree.*	*Address.*
FRED. TAYLOR PEDEN,	B.S. 1911,	Springdale, N. C.
Agent in Animal Husbandry, United States and North Carolina Departments of Agriculture.		
JOHN TAYLOR PEDEN, JR.,	B.E. 1911,	Pittsburgh, Pa.
Sales Department, Westinghouse Electric and Manufacturing Co.		
JAMES HICKS PEIRCE,	B.S. 1905,	Warsaw, N. C.
J. H. Peirce Manufacturing Co., Sash, Doors and Blinds.		
WILLIAM CASPER PENNINGTON,	B.E. 1910,	Thomasville, N. C.
The Amazon Cotton Mills.		
SAMUEL OSCAR PERKINS,	B.S. 1906,	Raleigh, N. C.
Soil Scientist, N. C. Department of Agriculture.		
EUGENE GRAY PERSON,	B.S. 1899,	Macon, Ga.
Train Dispatcher, Central of Georgia Railway.		
WILLIAM MONTGOMERY PERSON,	B.E. 1900,	Fairfield, Birm'h'm, Alabama.
Semet-Solvay By-product Coke Plant, of Ensley, Ala.		
FREDERICK COLWELL PHELPS,	B.E. 1904,	San Francisco, Cal.
Second Lieutenant, 12th U. S. Infantry.		
WILLIAM RANSOME PHILLIPS,	B.E. 1910,	Raleigh, N. C.
E.E. 1913. Engineering Department, Carolina Power and Light Co.		
ALEXANDER HOLLADAY PICKELL,	B.E. 1912,	Raleigh, N. C.
With Carolina Power and Light Co.		
PETER PENICK PIERCE,	B.E. 1909,	Marathon, Fla.
Resident Engineer, Construction Department, Florida East Coast Ry.		
GUY PINNER,	B.E. 1907,	New York, N. Y.
C.E. 1912. Assistant Engineer, with H. C. Keith, Consulting Engineer.		
WINSLOW GERALD PITMAN,	B.E. 1907,	Lumberton, N. C.
Superintendent City Water and Light Department.		
PAUL NATHANIEL PITTENGER,	B.E. 1911,	Goldsboro, N. C.
Carolina Power and Light Company.		
BENJAMIN FRANKLIN PITTMAN,	B.E. 1908,	Pee Dee, N. C.
Operating Power Plant, Yadkin River Power Co.		
LAWRENCE LYON PITTMAN,	B.E. 1908,	Whitakers, N. C.
Civil Engineer and Farmer.		
PAUL MILLER PITTS,	B.E. 1909,	Lockhart, Ala.
Machinist, Jackson Lumber Co.		
ANGELO BETTLENA PIVER,	B.E. 1906,	Phœnixville, Pa.
Structural Draftsman, Phœnix Bridge Co.		
WILLIAM CRAWFORD PIVER,	B.S. 1906,	New York, N. Y.
Riches, Piver & Co., Chemical and Color Manufacturers, Hoboken, N. J.		
JAMES KEMP PLUMMER,	B.S. 1907,	Raleigh, N. C.
M.S. 1909. M.A. 1911, Cornell University. Soil Chemist, State Department of Agriculture.		

Name.	*Degree.*	*Address.*
PLEASANT H. POINDEXTER, JR.,	B.Agr. 1905,	Sharon, Okla.
Manager, C. E. Sharp Lumber Co.		
RUBLE ISAAC POOLE,	B.E. 1908,	West Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
EDWARD GRIFFITH PORTER,	B.E. 1905,	Paraiso, C. Z.
Junior Engineer, Dredging Division, Isthmian Canal Commission.		
JUNIUS EDWARD PORTER,*	B.E. 1900,	Weldon, N. C.
General Manager and Treasurer, J. E. Porter & Co., Railroad Contractors.		
BRYANT MONROE POTTER,	B.E. 1912,	New Bern, N. C.
Civil Engineer.		
HARRY ALEXANDER POWELL,	B.E. 1908,	Fernandina, Fla.
Naval Stores Operator.		
JAMES ALEXANDER POWELL,	B.E. 1908,	East Wilkinsburgh, Pa.
M.E. 1913. Assistant Engineer, Condenser Department, Westinghouse Machine Co.		
JOEL POWERS,	B.E. 1903,	Goldsboro, N. C.
Draftsman, Dewey Brothers.		
THOMAS MILTON POYNER	B.E. 1908,	Hamlet, N. C.
W. R. Bonsal & Co.		
JAMES BRUCE PRICE,	B.E. 1910,	Cincinnati, Ohio.
Erecting Engineer, Westinghouse Electric and Manufacturing Co.		
JOHN MOIR PRICE,	B.E. 1909,	Bethlehem, Pa.
Salesman of Special Steels, Bethlehem Steel Co.		
HUGH WILLIAMS PRIMROSE,†	B.S. 1897,	Raleigh, N. C.
M.S. 1900.		
ABRAM HINMAN PRINCE,	B.S. 1895,	Orange, Tex.
Agent U. S. Department of Agriculture.		
CHARLES MARCELLUS PRICHETT,	M.E. 1895,	Charlotte, N. C.
C.E. 1896. Osborne & Pritchett, Civil Engineers.		
VICTOR VASHTI PRIVOTT,	B.E. 1895,	Suffolk, Va.
Merchant.		
THOMAS HECTOR PURCELL,	B.E. 1913,	Hope Mills, N. C.
Assistant Bookkeeper, Hope Mills Manufacturing Co.		
HENRY AUBREY QUICKEL,	B.S. 1913,	Rockingham, N. C.
Assistant to Superintendent, Great Falls Manufacturing Co.		
JOSEPHUS PLUMMER QUINERLY,	B.S. 1911,	Grifton, N. C.
Farmer and Merchant.		
JOHN OLIN RANKIN, JR.,	B.S. 1913,	Hoffman, N. C.
Dairy Superintendent for Frederick T. Gates & Son.		
WILLIAM WALTER RANKIN,	B.E. 1904,	Chapel Hill, N. C.
Instructor in Mathematics, University of North Carolina.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
RISDEN PATTERSON REECE,	B.E. 1904,	Winston-Salem, N. C.
Mechanical Engineer.		
ROBERT RICHARD REINHARDT,	B.S. 1909,	Lincolnton, N. C.
D.V.M., Kansas City Veterinary College.		
WILLIAM BENEDICT REINHARDT,	B.E. 1902,	Dawson, Y. T., Canada.
Electrician, Dawson Electric Light and Power Co.		
ROGER FRANCIS RICHARDSON,	B.E. 1900,	Ensley, Ala.
Engineer, Semet-Solvay Co.		
WILLIAM RICHARDSON, JR.,	B.E. 1904,	Birmingham, Ala.
Assistant to Consulting Engineer, Coal Mining Department, Tennessee Coal, Iron and Railroad Co.		
EDWARD HAYS RICKS,	B.E. 1903,	Roanoke Rapids, N.C.
Cashier First National Bank.		
LOUIS NAPOLEON RIGGAN,	B.E. 1912,	Norfolk, Va.
Draftsman, Seaboard Air Line Railway.		
ALFRED PRATTE RIGGS,	B.E. 1909,	Key West, Fla.
Florida East Coast Railway.		
ARCHIE KNIGHT ROBERTSON,	B.S. 1912,	West Raleigh, N. C.
Assistant in Boys' Corn Club Work in North Carolina, U. S. Department of Agriculture.		
DURANT WAITE ROBERTSON,	B.E. 1906,	Washington, D. C.
Teller, District National Bank.		
JOSEPH HENRY ROBERTSON,	B.E. 1909,	Salisbury, N. C.
North Carolina Public Service Co.		
JAY FREDERICK ROBINSON,	B.E. 1910,	Hampton, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co.		
GASTON WILDER ROGERS,	B.E. (Elec.) 1903,	Birmingham, Ala.
B.E. (Civil) 1905. Physician and Surgeon.		
ZEBBIE GEORGE ROGERS,	B.E. 1894,	Washington, D. C.
Civil Engineer.		
JOHN WESLEY ROLLINSON,*	B.E. 1911,	Zephyrhills, Fla.
WILLIAM EDWIN ROSE,	B.E. 1900,	Washington, D. C.
Mechanical Engineer. Member Washington Society Engineers and The American Society of Marine Draftsmen.		
CHARLES BURDETTE ROSS,	B.E. 1903,	Charlotte, N. C.
Secretary and Treasurer Model Steam Laundry Co.		
FLOYD DE ROSS,	B.E. 1900,	Lawton, Okla.
Owner Lawton Coca-Cola Bottling Co.		
GRAEME ROSS,	B.E. 1911,	Pittsburg, Pa.
Sales Department, Westinghouse Electric and Manufacturing Co.		
GEORGE ROMULUS ROSS,	B.S. 1911,	Jackson Springs, N. C.
Manager Farm for Roger A. Derby.		
GARLAND THOMAS ROWLAND,	B.E. 1913,	Pittsfield, Mass.
General Electric Co. of Schenectady, N. Y.		

* Not heard from this year.

Name.	*Degree.*	*Address.*

CARL COLLINS SADLER, B.E. 1910, Whitney, N. C.
Civil Engineer, Southern Aluminum Co.

JAMES OLIN SADLER, B.E. 1909, Bartow, Fla.
Resident Engineer, Seaboard Air Line Railway.

WILLIS HUNTER SANDERS, B.S. 1897, Weldon, N. C.
Superintendent of Power, Roanoke River Development Co.

JOHN HYER SAUNDERS, B.E. 1894, Kinston, N. C.
Locomotive Engineer, Atlantic Coast Line Railroad.

IRA OBED SCHAUB, B.S. 1900, Springfield, Mo.
Superintendent Demonstration Work, Frisco Railway.

LEON JACOB SCHWAB, B.E. 1907, Savannah, Ga.
Junior Engineer, U. S. Engineering Department.

ROBERT WALTER SCOTT, JR., B.Agr. 1905, Bolton, N. C.
Manager Bolton Farms.

EARLE ALOYSIUS SEIDENSPINNER,* B.S. 1910, Manila, P. I.
Lieutenant, Philippine Constabulary.

DAVID WALTER SEIFERT, B.E. 1913, Oxford, N. C.
Athletic Instructor, Horner Military School.

CARL DEWITT SELLARS, B.E. 1893, Greensboro, N. C.
Sales Department, Cone Export and Commission Co.

JOHN WILLIAM SEXTON, B.E. 1910, Portsmouth, Va.
Resident Engineer, Seaboard Air Line Railway.

CHARLES EDGAR SEYMORE,† B.S. 1893, Raleigh, N. C.

JAMES MORGAN SHERMAN, B.S. 1911, Madison, Wis.
M.S., Univ. of Wisconsin, 1912. Instructor in Agricultural Bacteriology, University of Wisconsin. Home Address, McLean, Va.

FLEMING BATES SHERWOOD, B.S. 1912, West Raleigh, N. C.
Instructor in Chemistry, N. C. College of Agriculture and Mechanic Arts.

FRANCIS WEBBER SHERWOOD, B.S. 1909, Ithaca, N. Y.
M.S. 1911. Graduate Student and Assistant in Chemistry, Cornell University.

ROBERT ARNOLD SHOPE, B.E. 1909, Manila, P. I.
Lieutenant, Philippine Constabulary, Insular Government.

JOHN WADE SHORE, B.S. 1900, Boonville, N. C.
Cashier Commercial and Savings Bank.

IRA SHORT, B.E. 1911, Wilkinsburg, Pa.
Engineer, Westinghouse Machine Co., of East Pittsburg, Pa.

JOHN HOUSTON SHUFORD, B.S. 1903, Charlotte, N. C.
Technical Representative and Salesman, Berlin Aniline Works.

JOHN OSCAR SHUFORD, B.E. 1907, Lincolnton, N. C.
Superintendent Electric Plant, Town of Lincolnton.

WILLIAM TALMAGE SHULL, B.E. 1912, Beaufort, N. C.
Civil Engineering.

---

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
ORIN MORROW SIGMON,	B.E. 1911,	Hickory, N. C.
Treasurer Piedmont Wagon and Manufacturing Co.		
GEORGE GRAY SIMPSON,	B.E. 1909,	Rockingham, N. C.
Assistant to Secretary and Treasurer Great Falls Manufacturing Co.		
WILLIAM DUDLEY SIMPSON,	B.E. 1913,	Raleigh, N. C.
Assistant Engineer, City of Raleigh.		
FREDERICK ERASTUS SLOAN,	B.S. 1899,	Dayton, Fla.
Field Supervisor, Our Home Life Insurance Co. of Jacksonville, Fla.		
ROBERT LEE SLOAN,	B.S. 1913,	Raleigh, N. C.
Assistant Director Farmers Institutes, North Carolina Department of Agriculture.		
WILLIAM NEVILLE SLOAN,	B.E. 1909,	Clayton, Ga.
Engineer of Surveys, U. S. Government Forest Service.		
ANDREW THOMAS SMITH,	B.S. 1899,	Bridgeton, N. J.
Mechanical Engineer, with Cumberland Glass Manufacturing Co.		
EDGAR ENGLISH SMITH,	B.E. 1908,	Seattle, Wash.
U. S. Coast and Geodetic Survey.		
EDWIN HARRISON SMITH	B.E. 1910,	Weldon, N. C.
Civil Engineer.		
EDWARD OSCAR SMITH,	B.E. 1901,	Newport News, Va.
Chief of Order Department, Newport News Shipbuilding and Dry Dock Co.		
FRANCIS CLARK SMITH,	B.E. 1913,	New Bern, N. C.
With R. R. Eagle.		
FRANK STEED SMITH,	B.E. 1913,	Jacksonville, Fla.
Supervisor District Traffic Department, Southern Bell Telephone and Telegraph Co.		
JAMES LAWRENCE SMITH, JR.,	B.E. 1908,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
JAMES MCCREE SMITH,	B.S. 1912,	State Road, N. C.
Fruit Grower.		
JONATHAN RHODES SMITH,	B.E. 1905,	New York, N. Y.
Chief Draftsman, The Jobson-Gifford Co.		
ORUS WILDER SMITH,	B.E. 1912,	Springfield, Ohio.
Road Engineer, Foos Gas Engine Co.		
WILLIAM TURNER SMITH,	B.E. 1900,	Duke, N. C., R. 1
Farmer.		
THOMAS JEHU SMITHWICK,	B.S. 1897,	Mount Airy, N. C.
Consulting and Erecting Engineer.		
RUSSELL ELSTNER SNOWDEN,	B.E. 1902,	New Bern, N. C.
Superintendent Public Roads and Highway Engineer, Craven County.		
CHARLIE AUGUSTINE SPEAS,	B.E. 1911,	Laurel, Miss.
New Orleans, Mobile and Chicago Railroad.		
EDWARD PINKNEY SPEER,	B.E. 1912,	Hillsboro, Tex.
Assistant Chief Meter Engineer, Texas Power and Light Co.		

Name.	*Degree.*	*Address.*
JOHN FRANCIS SPEIGHT,†	B.E. 1910,	Whitakers, N. C.
COLIN GEORGE SPENCER,	B.S. 1913,	Mebane, N. C.
Superintendent Murray Hill Farm.		
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C.E. 1913. Junior Engineer, U. S. Engineering Department.		
JESSE PAGE SPOON,	B.Agr. 1908,	Burlington, N. C.
M.S. 1909. Veterinarian. D.V.S., Kansas City Veterinary College.		
ST. JULIEN LACHICOTTE SPRINGS,	B.S. 1910,	Lake Waccamaw, N.C.
Farming for H. B. Short, and Traveling Salesman, Acme Manufacturing Company of Wilmington, N. C.		
ERVIN BLACKENEY STACK,	B.E. 1905,	Monroe, N. C.
Member of firm, J. E. Stack & Co.		
TALMAGE HOLT STAFFORD,	B.S. 1912,	Mayaguez, Porto Rico.
Assistant in Soils and Agronomy, College of Agriculture, University of Porto Rico.		
CHARLES BURT STAINBACK,	B.E. 1910,	East Pittsburg, Pa.
Sales Department, Westinghouse Electric and Manufacturing Co.		
EDWARD ROE STAMPS,	B.E. 1903,	Macon, Ga.
Superintendent, F. S. Royster Guano Co.		
HARRIS INGRAM STANBACK,	B.E. 1910,	Newark, N. J.
In Charge of Quality, General Electric Lamp Works.		
NUMA REID STANSEL,	B.S. 1898,	El Paso, Tex.
E.E. 1901. Local Manager Southwest General Electric Co.		
THOMAS BARNES STANSEL,	B.S. 1910,	Ithaca, N. Y.
Graduate Student, Cornell University.		
CLARENCE ALEXANDER STEDMAN,	B.S. 1912,	Richmond, Va.
Chemist, Virginia-Carolina Chemical Co.		
ALEXIS PRESTON STEELE,	B.S. 1899,	Statesville, N. C.
Mechanical Engineer, Firm of J. C. Steele & Sons.		
JOHN BROWN STEELE,	B.S. 1913,	Blountsville, Ala.
Teacher of Agriculture, Alabama State School.		
HUGH STUART STEELE,	B.E. 1909,	Miles City, Mont.
Drainage Engineer, Chicago, Milwaukee and St. Paul Railway.		
LUCIUS ESEK STEERE, JR.,	B.E. 1911,	St. Louis, Mo.
Engineer, Wagner Electric Manufacturing Co.		
SAMUEL FATIO STEPHENS,	B.E. 1909,	Norfolk, Va.
Draftsman.		
NEEDHAM BRYAN STEVENS,	B.S. 1912,	Goldsboro, N. C., R.4.
Farming.		
WILLIAM BEEVER STOVER,	B.E. 1913,	Wilkinsburg, Pa.
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Name.	*Degree.*	*Address.*
CHARLIE BERRYHILL STOWE,	B.S. 1913,	Charlotte, N. C., R. 4.
Farmer.		
GEORGE YATES STRADLEY,	B.E. 1903,	Roanoke, Va.
Roanoke Bridge Co., Inc.		
JOHN SNIPES STROUD,	B.E. 1908,	Meridian, Miss.
Superintendent Lauderdale Cotton Mills.		
WALTER STEPHEN STURGILL,	B.E. 1901,	West Point, N. Y.
First Lieutenant of Field Artillery, U. S. Army. Assistant Instructor of Tactics, U. S. Military Academy.		
WILLIAM CLARK STRYON,	B.E. 1910,	Newport News, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co. Home Address, Washington, N. C.		
TEISAKU SHUGISHITA,*	B.S. 1898,	Japan.
BEVERLY NATHANIEL SULLIVAN,	B.S. 1901,	Winston- Salem, N. C.
Superintendent Winston-Salem Gas Co.		
THOMAS BRYAN SUMMERLIN,	B.E. 1910,	Calypso, N. C.
Albritton & Summerlin, General Merchants.		
HENRY NEWBOLD SUMNER,	B.E. 1909,	Fort Dade, Fla.
Lieutenant Coast Artillery Corps, U. S. Army.		
LLOYD HURST SWINDELL,	B.E. 1911,	Raleigh, N. C.
Southern Bell Telephone and Telegraph Co.		
STANTON BANKS SYKES,	B.E. 1913,	Chicago, Ill.
Student Course, Western Electric Co.		
VANCE SYKES,	B.E. 1907,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
GEORGE FREDERICK SYME,	B.S. 1898,	Raleigh, N. C.
C.E. 1907. Locating Engineer, Raleigh, Charlotte and Southern Railway.		
WILLIAM ANDERSON SYME,†	B.S. 1899,	Raleigh, N. C.
M.S. 1903. Ph.D., Johns Hopkins University.		
FREDDIE JACKSON TALTON,	B.Agr. 1906,	Pikeville, N. C., R. 2.
Farmer.		
CLAUDE STRATON TATE,	B.E. 1909,	Littleton, N. C.
Secretary, Tate Machinery and Supply Co.		
ARTHUR WILLIS TAYLOR,	B.E. 1912,	Raleigh, N. C.
Special Course with Carolina Power and Light Co.		
CULVER MURAT TAYLOR,	B.E. 1912,	Syracuse, N. Y.
Niagara, Lockport and Ontario Power Co.		
HERBERT LEE TAYLOR,	B.E. 1912,	Baltimore, Md.
Special Apprentice, B. and O. R. R.		
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Resident Engineer for H. C. Raynes, Inc., Consulting Engineers of Boston, Mass.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
JAMES CLARENCE TEMPLE,	B.S. 1904,	Experiment, Ga.
M.S. 1908. Bacteriologist, Georgia Experiment Station.		
MALVERN HILL TERRELL,	B.E. 1909,	Atlanta, Ga.
Chief Engineer, U. S. Post Office and Courthouse.		
FRANK MARTIN THOMPSON,	B.E. 1910,	Wake Forest, N. C.
Athletic Coach, Wake Forest College. Home Address, Raleigh, N. C.		
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Electrician, General Electric Co.		
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Farmer.		
THOMAS HAMPTON THOMPSON,	B.E. 1910,	Greensboro, N. C.
Southern Railway.		
BUXTON WILLIAMS THORNE,†	B.E. 1893,	Holly Springs, Miss.
THOMAS WHITMELL THORNE,	B.E. 1911,	Atlanta, Ga.
Salesman, National Tube Co.		
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Civil Engineer, Shand Engineering Co.		
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Assistant Chemist, Tennessee Copper Co.		
CHARLES EDWARD TROTTER,†	B.S. 1903,	Franklin, N. C.
M.D., Johns Hopkins University.		
GEORGE REID TROTTER,	B.E. 1912,	Atlanta, Ga.
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Construction Foreman, General Electric Co.		
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City Engineer.		
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JOSEPH PLATT TURNER,	B.E. 1902,	Leaksville, N. C.
Owner Twin City Supply Co.		
WILLIAM HARRISON TURNER,	B.E. 1893,	Winston-Salem, N. C.
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† Deceased.

Name.	*Degree.*	*Address.*
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Farmer.		
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M.S. 1913, George Washington University. Assistant Chemist, Bureau Internal Revenue.		
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M.E. 1909. M.E. 1911, Columbia University. Instructor in Mechanical Engineering, N. C. College of Agriculture and Mechanic Arts.		
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SYLVESTER MURRAY VIELE,	B.E. 1905,	Altoona, Pa.
Pennsylvania Railroad Co.		
JOHN LAWRENCE VON GLAHN,	B.E. 1908,	Baltimore, Md.
Elkan-Tufts Construction Co.		
EDWIN THOMAS WADSWORTH,	B.E. 1911,	Erie, Pa.
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Marine Engine and Boiler Draftsman, Machinery Division, U. S. Navy Yard.		
JOSEPH KENDALL WAITT,	B.E. 1904,	Mulberry, Fla.
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WALTER JENNINGS WALKER,*	B.E. 1905,	Schenectady, N. Y.
General Electric Co. Home Address, Winston-Salem, N. C.		
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CHARLES EMMETTE WALTON,	B.E. 1910,	Ampere, N. J.
Engineering Department, Crocker-Wheeler Co.		
BENJAMIN FRANKLIN WALTON,	B.S. 1894,	Raleigh, N. C., R. 1.
Farmer.		
EDMUND FARRIS WARD,	B.Agr. 1907,	Smithfield, N. C.
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JAMES HUNTER WATSON,	B.S. 1911,	Raleigh, N. C.
Agent Atlantic Life Insurance Co., of Richmond, Va.		
JORDAN LEA WATSON,†	B.S. 1897,	Atlanta, Ga.
M.E., 1899.		
WALTER WELLINGTON WATT, JR.,	B.E. 1905,	Charlotte, N. C.
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LINDSAY MARADE WEAVER,	B.E. 1907,	Lexington, N. C.
Dacotah Cotton Mills, Inc.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
MARION EMERSON WEEKS,	B.E. 1904,	Washington, D. C.
Draftsman, Signal Corps, U. S. Army.		
CLEVELAND DOUGLAS WELCH,	B.E. 1902,	Mayesworth, N. C.
Superintendent, Mayes Manufacturing Co.		
HOWARD WALDO WELLES, JR.,	B.E. 1910,	Philadelphia, Pa.
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ALBERT CLINTON WHARTON, JR.,	B.S. 1904,	Clemmons, N. C.
Farmer, Live Stock.		
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Instructor, North Carolina College of Agriculture and Mechanic Arts.		
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Assistant Manager, Mutual Film Corporation.		
CECIL BERNARD WHITEHURST,	B.E. 1907,	Richmond, Va.
Power Apparatus Specialist, Western Electric Co.		
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Civil Engineer, Norfolk Southern Railway.		
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GAITHER HALL WHITING,†	B.S. 1900,	Raleigh, N. C.
LEVI ROMULUS WHITTED,	B.S. 1896,	Washington, D. C.
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ARCHIE CARRAWAY WILKINSON,	B.E. 1905,	Portsmouth, Va.
Civil Engineer, Seaboard Air Line Railway.		
CHARLES BURGESS WILLIAMS,	B.S. 1893,	West Raleigh, N. C.
M.S. 1896. Vice-Director and Chief of Division of Agronomy, N. C. Agricultural Experiment Station.		
CLAUDE B. WILLIAMS,	B.S. 1899,	Elizabeth City, N. C.
Physician.		
HENRY LLOYD WILLIAMS,	B.S. 1896,	Cofield, N. C.
General Manager Mills, Cofield Manufacturing Co.		
JOHN C. WILLIAMS,	B.E. 1908,	Pensacola, Fla.
Gulf, Florida and Alabama R. R., Pensacola, Fla.		
JAMES HARLEY WILLIAMS,	B.E. 1906,	Chattanooga, Tenn.
B.A.S., Association College, 1910.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*

ALVIN CHESLEY WILSON, B.E. 1913, Pittsfield, Mass.
Student Testman, General Electric Co. of Schenectady, N. Y.

ARTHUR JOHN WILSON, B.S. 1907, Chattanooga, Tenn.
M.S. 1908. Ph.D. 1911, Cornell. Professor of Chemistry, Chattanooga University.

JOHN MCCAMY WILSON, B.E. 1894, Atlanta, Ga.
Refrigerating Engineer, Atlanta Ice and Coal Corporation.

JOHN SPICER WILSON, B.E. 1909, Deer Lodge, Mont.
Professor of Electrical Engineering, College of Montana.

WALTER BOOKER WINFREE, B.S. 1911, Wadesboro, N. C.,R.3.
Farmer.

EDWARD LEIGH WINSLOW, B.E. 1910, Puerto Barrios, Guatemala.
United Fruit Co. Home Address, Hertford, N. C.

LEWIS TAYLOR WINSTON, B.Agr. 1906, Big Stone Gap, Va.
Accountant, General Offices, Stonega Coke and Coal Co., Inc.

HOWARD WISWALL, JR., B.E. 1895, Florence, S. C.
Civil Engineer.

PAUL ADAMS WITHERSPOON, B.E. 1909, Baltimore, Md.
Rodman, Office Engineer M. of W., B. and O. R. R.

BRADLEY JEWETT WOOTEN,† B.S. 1897, Wilmington, N. C.

BENJAMIN VAIDEN WRIGHT, B.E. 1901, Laurel, Miss.
Chief Engineer, N. O., M. and C. R. R.

MARION FULLER WYATT, B.E. 1911, Raleigh, N. C.
Vice-President Job P. Wyatt & Sons Co.

ROBERT JOB WYATT, B.E. 1909, Raleigh, N. C.
Treasurer Job P. Wyatt & Sons Co.

CHARLES GARRETT YARBROUGH, B.E. 1895, Los Angeles, Cal.
District Superintendent of Service Department, Westinghouse Electric and Manufacturing Co.

LOUIS THOMAS YARBROUGH, B.E. 1893, Raleigh, N. C.
Register Clerk, Raleigh Post Office.

WOODFIN BRADSHER YARBROUGH, B.E. 1908, Morenci, Ariz.
Detroit Copper Mining Co.

SAMUEL MARVIN YOUNG, B.E. 1893, Raleigh, N. C.
Traveling Salesman, Supplee-Biddle Hardware Co., of Philadelphia.

JOHN FRANKLIN ZIGLAR, B.E. 1908, Charlotte, N. C.
Assistant Engineer, Maintenance of Way Department, Southern Railway.

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† Deceased.

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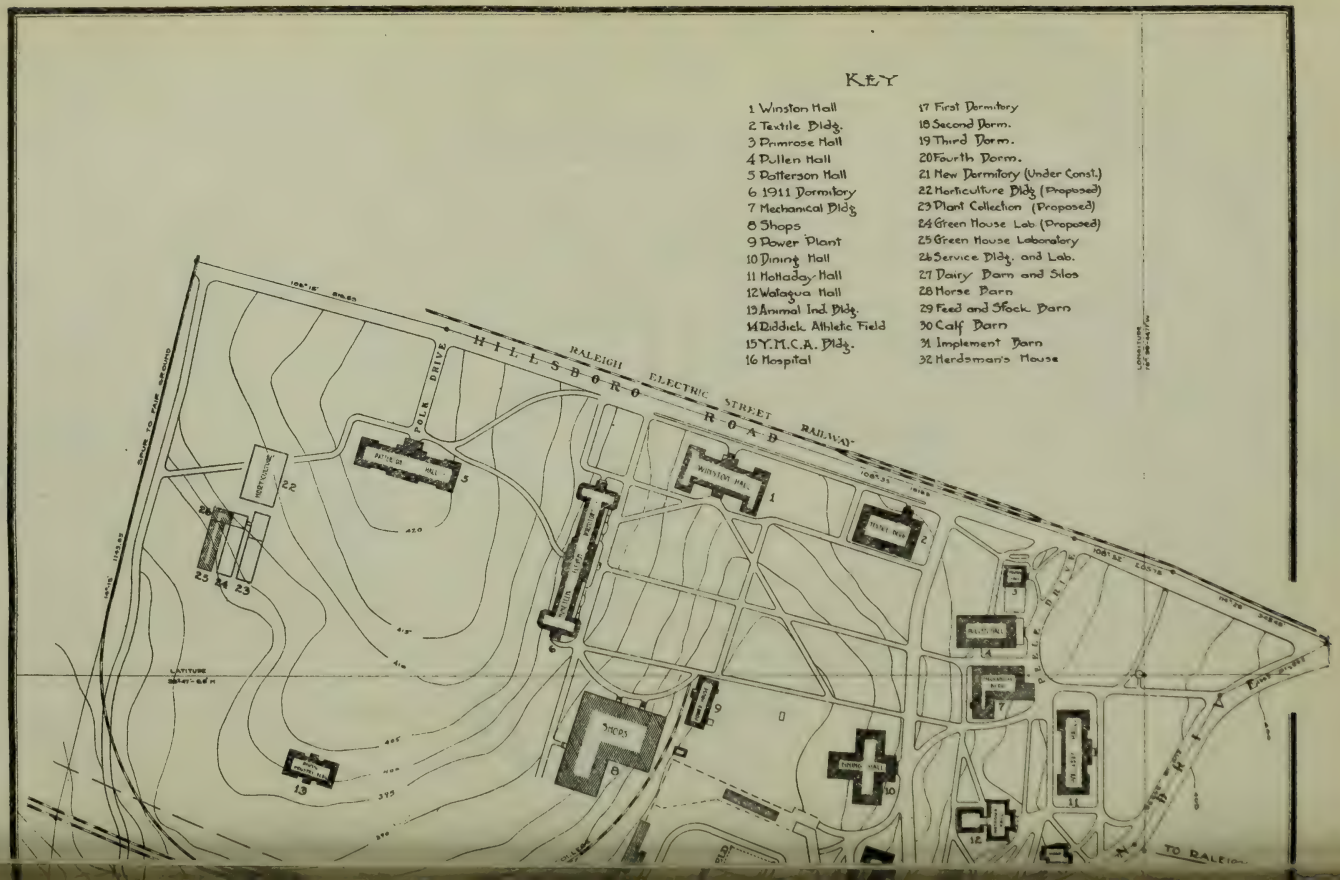
REGISTRAR, A. AND M. COLLEGE,
West Raleigh, N. C.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2 Textile Bldg.
3 Primrose Hall
4 Pullen Hall
5 Patterson Hall
6 1911 Dormitory
7 Mechanical Bldg
8 Shops
9 Power Plant
10 Dining Hall
11 Holladay Hall
12 Watauga Hall
13 Animal Ind. Bldg.
14 Riddick Athletic Field
15 Y.M.C.A. Bldg.
16 Hospital
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18 Second Dorm.
19 Third Dorm.
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22 Horticulture Bldg (Proposed)
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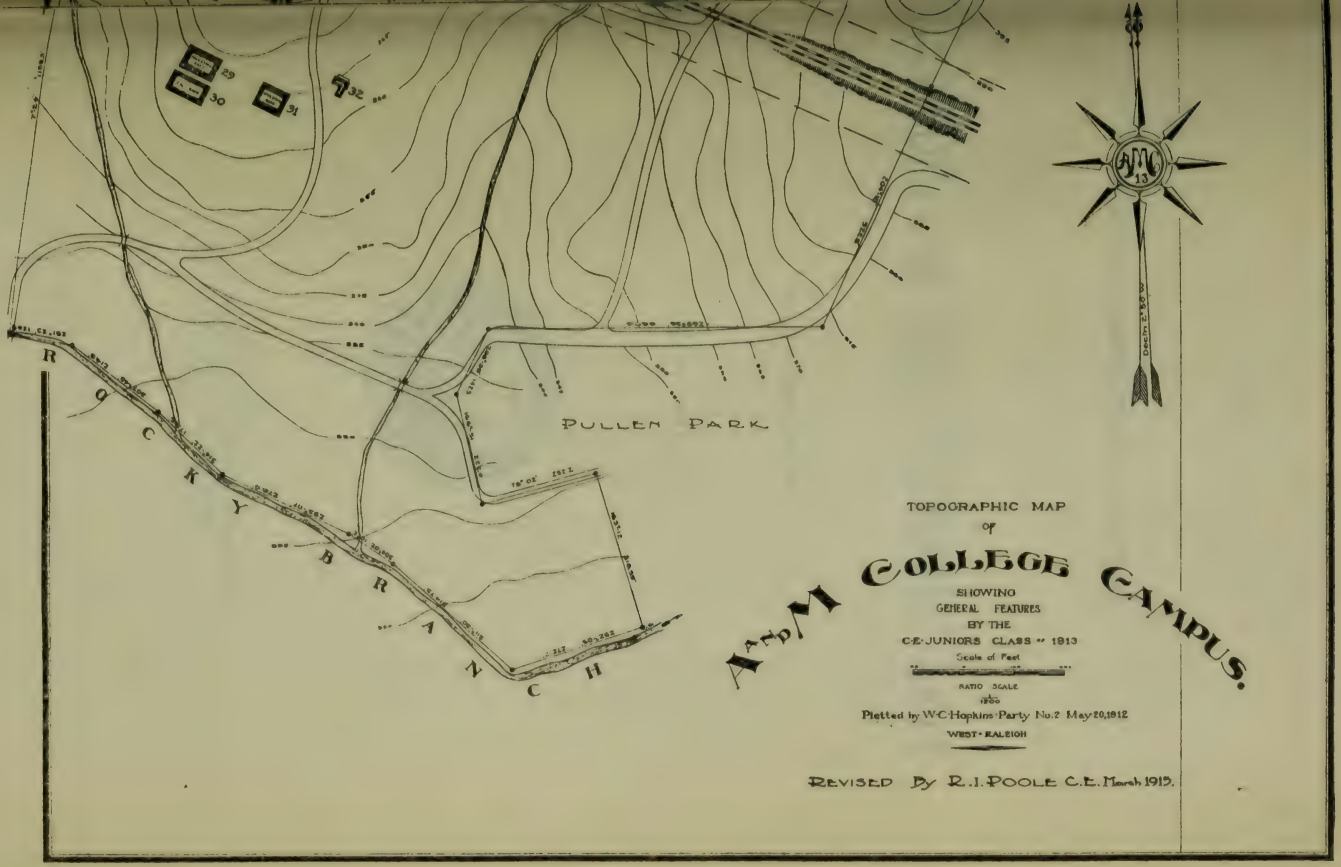
26 Service Bldg. and Lab.
27 Dairy Barn and Silos
28 Horse Barn
29 Feed and Stock Barn
30 Calf Barn
31 Implement Barn
32 Herdsman's House
HILLSBORO STREET
RALEIGH ELECTRIC STREET RAILWAY
POLK DRIVE
TO RALEIGH


29
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32
PULLEN PARK
ROCKY BRANCH
A. & M. 13
TOPOGRAPHIC MAP
OF
A. and M. COLLEGE CAMPUS.
SHOWING
GENERAL FEATURES
BY THE
C.E. JUNIORS CLASS '' 1913
Scale of Feet
RATIO SCALE
1:600
Plotted by W.C. Hopkins Party No. 2 May 20, 1912
WEST RALEIGH
REVISED By R.I. POOLE C.E. March 1913.

THE

NORTH CAROLINA COLLEGE

OF

AGRICULTURE AND MECHANIC ARTS

WEST RALEIGH

1914-1915

RALEIGH
EDWARDS & BROUGHTON PRINTING COMPANY
STATE PRINTERS AND BINDERS
1915

Calendar

1915

JANUARY

S	M	T	W	T	F	S
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COLLEGE CALENDAR.

1915.

Thursday, July	8.	Entrance examination at each county courthouse, 10 a. m.
Wednesday, September	1.	Entrance examination at the College, 8:30 a. m.
Thursday, September	2.	First Term begins; Registration Day.
Thursday, November	25.	Thanksgiving Day.
Wednesday, December	22.	First Term ends.

1916.

Wednesday, January	5.	Second Term begins; Registration Day.
Sunday, May	28.	Baccalaureate Sermon.
Monday, May	29.	Alumni Day. Annual oration.
Tuesday, May	30.	Commencement Day.

BOARD OF TRUSTEES.

GOVERNOR LOCKE CRAIG, *ex officio Chairman.*

Name.	*Postoffice.*	*Term Expires.*
EVERETT THOMPSON	Elizabeth City	March 20, 1917.
R. H. RICKS	Rocky Mount	March 20, 1917.
D. MAX GARDNER	Shelby	March 20, 1917.
M. L. REED	Asheville	March 20, 1917.
T. T. THORNE	Rocky Mount	March 20, 1919.
C. W. GOLD	Greensboro	March 20, 1919.
T. E. VANN	Como	March 20, 1919.
P. S. BOYD	Mooresville	March 20, 1919.
W. E. DANIEL	Weldon	March 20, 1921.
W. H. RAGAN	High Point	March 20, 1921.
W. B. COOPER	Wilmington	March 20, 1921.
J. P. MCRAE	Laurinburg	March 20, 1921.
M. B. STICKLEY	Concord	March 20, 1923.
T. T. BALLENGER	Tryon	March 20, 1923.
W. H. WILLIAMSON	Raleigh	March 20, 1923.
O. L. CLARK	Clarkton	March 20, 1923.

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R. H. RICKS, O. L. CLARK,
M. B. STICKLEY, C. W. GOLD, *Secretary.*

FACULTY OF THE NORTH CAROLINA COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

DANIEL HARVEY HILL,
President.
A.M. 1885, Lit.D. 1905, Davidson College; LL.D., University of North Carolina.

WALLACE CARL RIDDICK,
Professor of Civil Engineering and Vice President.
A.B. 1885, University of North Carolina; C.E. 1890, Lehigh University.

WILLIAM ALPHONSO WITHERS,
Professor of Chemistry.
A.B. 1883, A.M. 1885, Davidson College; Fellow in Chemistry, 1889-1890, Cornell University.

ROBERT E. LEE YATES,
Professor of Mathematics.
A.M. 1889, Wake Forest College.

THOMAS NELSON,
Professor of Textile Industry.
Preston (England) Technical School.

CLIFFORD LEWIS NEWMAN,
Professor of Agriculture.
B.S. 1886, M.S. 1887, Alabama Polytechnic Institute.

WILLIAM HAND BROWNE,
Professor of Physics and Electrical Engineering.
A.B. 1890, Certificate in Electrical Engineering 1892, Johns Hopkins University.

HOWARD ERNEST SATTERFIELD,
Professor of Mechanical Engineering.
B.S. 1904, M.E. 1909, Purdue University.

THOMAS PERRIN HARRISON,
Professor of English, and Dean of College.
B.S. 1886, S. C. Military Academy; Ph.D. 1891, Johns Hopkins University.

GUY ALEXANDER ROBERTS,
Professor of Veterinary Science and Physiology.
B.Agr. 1899, B.S. 1900, University of Missouri; D.V.S. 1903, Kansas City Veterinary College.

JOHN CHESTER McNUTT,
Professor of Animal Husbandry and Dairying.
B.S. in Agr., Ohio State University.

JOSHUA PLUMMER PILLSBURY,
Professor of Horticulture.
B.S. 1910, Pennsylvania State College.

HARRY RASCOE FULTON,
Professor of Botany and Vegetable Pathology.
B.A. 1900, University of Mississippi; M.A. 1905, University of Missouri; M.A. 1906, Harvard University.

MELVIN ERNEST SHERWIN,
Professor of Soils.
B.S. 1908, University of Missouri; M.S. 1909, University of California.

CARROLL LAMB MANN,
Professor of Railroad Engineering.
C.E. 1906, N. C. College of Agriculture and Mechanic Arts.

ZENO PAYNE METCALF,
Professor of Zoology and Entomology.
B.A. 1907, Ohio State University.

HORACE FLETCHER SPURGIN,
Professor of Military Science and Tactics.
Graduate U. S. Military Academy; First Lieutenant U. S. Army.

THOMAS EVERETT BROWNE,
Professor of Agricultural Extension.
A.B. 1906, Wake Forest College.

WILLIAM ROSWELL CAMP,
Professor of Agricultural Economics.
B.A. 1909, Leland Stanford University.

BENJAMIN FRANKLIN KAUPP,
Professor of Poultry Science.
M.S. 1909, Colorado Agricultural College; D.V.M., Kansas City Veterinary College.

CHARLES McGEE HECK,
Associate Professor of Physics.
A.B., Wake Forest College; M.A., Columbia University.

WELDON THOMPSON ELLIS,
Associate Professor of Machine Design and Applied Mechanics.
B.E. 1906, M.E. 1908, N. C. College of Agriculture and Mechanic Arts.

GEORGE SUMMEY, Jr.,
Assistant Professor of English.
A.B. 1897, Ph.D. 1901, Southwestern Presbyterian University.

LEON FRANKLIN WILLIAMS,
Assistant Professor of Chemistry.
A. B. 1901, Trinity College; Ph.D. 1907, Johns Hopkins University.

HENRY KNOX McINYTRE,
Assistant Professor of Physics and Electrical Engineering.
E.E. 1899, Columbia University.

LILLIAN LEE VAUGHAN,
Assistant Professor of Experimental Engineering.
B.E. 1906, N. C. College Agriculture and Mechanic Arts; M.E. 1911, Columbia University.

LAWRENCE EARL HINKLE,
Assistant Professor of Modern Languages.
B.A. 1911, University of Colorado; Graduate Student Chicago University, Princeton University.

CHARLES BENJAMIN PARK,
Instructor in Machine Shop and Assistant in Power Plant.

JOHN EDWARD HALSTEAD,
Instructor in Dyeing.
B.Sc. 1895, Leeds University, England.

HERBERT NATHANIEL STEED,
Instructor in Weaving and Designing.

FRED BARNETT WHEELER,
Instructor in Wood Shop and Pattern Making.
B.E. 1912, N. C. College of Agriculture and Mechanic Arts.

JOHN WILLIAM HARRELSON,
Instructor in Mathematics.
E.E. 1909, N. C. College of Agriculture and Mechanic Arts.

VERGIL CLAYTON PRITCHETT,
Instructor in Physics.
A.B. 1907, Elon College; M.S. 1910, University of North Carolina.

RUBLE ISAAC POOLE,
Instructor in Civil Engineering.
B.E. 1908, N. C. College of Agriculture and Mechanic Arts; C.E. 1910, Cornell University.

HARRY TUCKER,
Instructor in Mathematics and Civil Engineering.
B.A. and B.S. 1910, Washington and Lee University.

LAFAYETTE FRANK KOONCE,
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B.Agr. 1907, N. C. College of Agriculture and Mechanic Arts; D.V.M., Kansas City Veterinary College.

EDGAR ALLAN HODSON,
Instructor in Agronomy.
B.S. 1911, Alabama Polytechnic Institute; M.S. 1914, N. C. College of Agriculture and Mechanic Arts.

JULIUS WILLIAM PRATT,
Instructor in English.
A.B. 1908, Davidson College; M.A. 1914, University of Chicago.

SCHUYLER MARSH SALISBURY,
Instructor in Dairying.
B.S.A. 1913, Ohio State University.

EVERETT HANSON COOPER,
Instructor in Bacteriology.
B.S. 1913, Massachusetts Agricultural College.

HARRY CURTIS YOUNG,
Instructor in Botany.
B.S., Ohio State University.

HERMON BURKE BRIGGS,
Instructor in Mechanical Drawing.
B.E. 1913, N. C. College of Agriculture and Mechanic Arts.

EDGAR BYRON NICHOLS,
Instructor in Foundry and Forge.
B.E. 1914, N. C. College of Agriculture and Mechanic Arts.

CARLETON FRIEND MILLER,
Instructor in Chemistry.
Ph.D., Cornell University.

EDWIN LOUIS FREDERICK,
Instructor in Chemistry.
A.B. 1911, Ph.D. 1914, Johns Hopkins University.

JAMES TALMAGE DOBBINS,
Instructor in Chemistry.
A.B. 1911, A.M. 1912, Ph.D. 1914, University of North Carolina.

HENRY LEON COX,
Instructor in Chemistry.
B.S. 1914, University of North Carolina.

FIELDING FICKLEN JETER,
Instructor in Mathematics.
A.B. 1914, A.M. 1915, Randolph-Macon College.

DEAN WILLIAM MARTIN,
Instructor in Physics.
B.S., Grove City College.

WILLIAM GALLOWAY RICHARDSON, Jr.,
Instructor in Mechanical Drawing.
M.E. 1914, Lehigh University.

JAMES BLAINE SCARBOROUGH,
Instructor in Mathematics.
A.B. 1913, A.M. 1914, University of North Carolina.

WALTER BIVINS SMITH,
Instructor in Physiology and Pathology.
D.V.M. 1914, Alabama Polytechnic Institute.

KENNETH TRACY WEBBER,
Instructor in English.
B.S. 1913, Colgate University.

HARVEY LANGILL JOSLYN,
Instructor in Soils.
B.S. 1913, N. C. College of Agriculture and Mechanic Arts.

CLAUDE JACQUES HAYDEN,
Instructor in Horticulture.
B.S. 1912, Clemson College; B.S. 1914, University of Idaho.

ELMER ALDRICH RICKARD,
Student Instructor in Mathematics.
A.B. 1912, Roanoke College.

CHARLES WEBB DAVIS,
Student Instructor in Mathematics.
A.B., Wake Forest College.

RUTLEDGE HUGHES FEILD,
Student Instructor in Zoology and Entomology.

HERBERT SPENCER,
Student Instructor in Zoology and Entomology.

ARCHIE KNIGHT ROBERTSON,
Assistant in Agricultural Extension.
B.S. 1912, N. C. College of Agriculture and Mechanic Arts.

MRS. CHARLES McKIMMON,
Assistant in Agricultural Extension.

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ARTHUR FINN BOWEN,
Bursar.

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Physician.

ARTHUR BUXTON HURLEY,
Steward.

FREDERICK STANGER,
Superintendent of Grounds and Buildings.

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Librarian.

MRS. ELLA I. HARRIS,
Hospital Matron.

JAMES JOSHUA KING,
General Secretary of the Young Men's Christian Association.

EDGAR BYRON NICHOLS, B.E.,
Assistant Secretary of the Young Men's Christian Association.

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Secretary to President.

MISS KATHERINE JOSEPHINE MACKAY,
Bookkeeper in Bursar's Office.

MISS LUCILE ANDERSON,
Stenographer, Agricultural Department.

MISS MARY CONSTANCE BLEDSOE,
Stenographer, Engineering Department.

MISS ELIZABETH GORDAN GRIFFIN,
Stenographer, Registrar's Office.

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W. A. GRAHAM,
Commissioner of Agriculture.

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Director.

C. B. WILLIAMS,
Vice-Director, Agronomist.

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Chemist.

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Horticulturist.

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Horticulturist.

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Plant Diseases.

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Entomologist.

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Animal Industry.

W. R. CAMP,
Marketing.

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Poultry Investigator and Pathologist.

J. M. PICKEL,
Feed Chemist.

W. G. HAYWOOD,
Fertilizer Chemist.

L. L. BRINKLEY,
Soil Survey.

.....

Assistant Horticulturist.

[2]W. E. HEARN,
Soils.

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Associate in Animal Industry.

J. K. PLUMMER,
Soil Chemist.

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Dairy Experimenter.

G. M. GARREN,
Assistant Agronomist in Crops.

[1]E. H. MATHEWSON,
Tobacco Expert.

S. O. PERKINS,
Soil Survey.

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Assistant Chemist.

L. R. DETJEN,
Assistant Horticulturist.

C. L. METCALF,
Assistant Entomologist.

A. R. RUSSELL,
Assistant in Field Experiments.

R. Y. WINTERS,
Agronomist in Crops.

W. F. PATE,
Agronomist in Soils.

ALLEN G. OLIVER,
Poultry Clubs.

E. S. DEWAR,
Assistant Chemist.

R. G. HILL,
Assistant Horticulturist.

[4]H. M. LYNDE,
Drainage Engineer.

[1]J. M. JOHNSON,
Farm Management.

F. R. BAKER,
Assistant Drainage Engineer.

R. O. CROMWELL,
Assistant in Plant Diseases.

A. J. REED,
Dairy Farming.

STANLEY COMBES,
Assistant in Dairy Farming.

A. L. SHOOK,
Assistant in Beef and Swine.

W. C. NORTON,
Assistant in Bacteriology.

T. E. BROWNE,
Assistant in Charge of Boys' Clubs.

A. K. ROBERTSON,
Assistant in Boys' Clubs.

[1]MRS. CHARLES McKIMMON,
Assistant in Charge of Girls' Clubs.

[1]MISS MARGARET SCOTT,
Assistant in Girls' Clubs.

B. SZYMONIAK,
Demonstration Horticulturist.

C. D. MATTHEWS,
Experimental Horticulturist.

R. C. JURNEY,
Soil Survey.

E. B. HART,
Assistant Chemist.

F. E. CARRUTH,
Assistant Chemist.

J. R. MULLEN,
Assistant Chemist.

E. C. BLAIR,
Assistant Agronomist in Soils.

F. B. SHERWOOD,
Assistant Chemist.

A. F. BOWEN,
Bursar.

R. W. COLLETT,
Assistant Director Branch Stations.

F. T. MEACHAM,
Assistant Director Iredell Branch Station, Statesville.

J. H. JEFFERIES,
Assistant Director Pender Branch Station, Willard.

C. E. CLARK,
Assistant Director Edgecombe Branch Station, Rocky Mount.

E. G. MOSS,
Assistant Director Granville Station, Oxford.

F. S. PUCKETT,
Assistant Director Buncombe and Transylvania Test Farms, Swannanoa.

The Experiment Station is supported and conducted jointly by the College and the State Department of Agriculture. A joint committee from the Board of Trustees of the College and the Board of Agriculture, under agreement entered into by the boards and authorized by an act of the Legislature in 1913, has direct charge of the work of the Station.

---

1 In coöperation with the United States Department of Agriculture, Bureau of Plant Industry.

2 In coöperation with the United States Department of Agriculture, Bureau of Soils.

3 In coöperation with the United States Department of Agriculture, Bureau of Animal Industry.

4 In coöperation with the United States Department of Agriculture, Office of Experiment Stations.

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LIEUTENANT HORACE F. SPURGIN, United States Army.

Cadet Lieutenant Colonel.

F. K. KRAMER.

Cadet Majors.

D. L. HOOPER.
G. L. JEFFERS.

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J. S. HOWARD, Captain and Quartermaster.

Noncommissioned Staff.

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J. O. WARE, Quartermaster Sergeant and Color Sergeant.

Band.

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F. S. KLUTTZ, First Sergeant.
G. G. BAKER, Corporal.
G. H. LAWRENCE, Corporal.

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J. F. HARRIS, First Lieutenant.
E. L. COTTON, Second Lieutenant.
S. G. CRATER, First Sergeant.
J. A. FARRIOR, Sergeant.
A. N. GOODSON, Sergeant.
P. H. KIME, Sergeant.
F. W. HOWARD, Corporal.
B. D. HODGES, Corporal.
J. E. IVEY, Corporal.
F. L. NIXON, Corporal.

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O. M. SCHLICHTER, First Sergeant.
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T. H. HOLMES, Sergeant.
P. H. McCALL, Sergeant.
L. B. RAY, Sergeant.
G. G. AVANT, Corporal.
R. V. GRINDSTAFF, Corporal.
R. W. McGEACHY, Corporal.
T. J. MARTIN, Corporal.
N. W. WELDON, Corporal.
T. H. WILLIAMS, Corporal.

Company C.

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C. R. RUSSELL, First Sergeant.
S. M. CREDLE, Sergeant.
E. A. HESTER, Sergeant.
L. B. JOHNSON, Sergeant.
W. P. KENNEDY, Sergeant.
H. CRAWFORD, Corporal.
D. R. S. FRAZIER, Corporal.
E. B. HAYNES, Corporal.
G. E. KNOX, Corporal.
J. A. STALLINGS, Corporal.

Company D.

H. B. CONSTABLE, Captain.
L. W. GARDNER, First Lieutenant.
J. M. SPEARS, Second Lieutenant.
C. S. ABERNETHY, First Sergeant.
M. M. FONTAINE, Sergeant.
W. F. MORRISON, Sergeant.
J. F. NEELY, Sergeant.
R. M. RITCHIE, Sergeant.
H. H. CRAWFORD, Corporal.

M. C. FOWLER, Corporal.
E. H. HOLTON, Corporal.
J. F. WILLIAMS, Corporal.

Company E.

V. R. HERMAN, Captain.
T. C. PEGRAM, First Lieutenant.
E. S. MILLSAPS, First Sergeant.
C. W. CLARK, Sergeant.
J. A. FRAZIER, Sergeant.
R. H. HODGES, Sergeant.
J. F. WILLIAMS, Sergeant.
L. W. BAKER, Corporal.
F. E. COXE, Corporal.
F. J. HAIGHT, Corporal.
W. K. SCOTT, Corporal.

Company F.

H. M. ALEXANDER, Captain.
R. BROOKS, First Lieutenant.
P. A. ROBERTS, First Sergeant.
J. A. ARDREY, Sergeant.
J. S. BONNER, Sergeant.
P. R. RAND, Sergeant.
H. C. REA, Sergeant.
A. S. CLINE, Corporal.
A. T. HARTMANN, Corporal.
E. McPHAUL, Corporal.
P. McK. WILLIAMS, Corporal.

Company G.

R. G. PARLIER, Captain.
W. C. ALBRIGHT, First Lieutenant.
R. W. HAMILTON, Second Lieutenant.
E. K. HERMAN, First Sergeant.
T. W. BROOKS, Sergeant.
R. H. HILL, Sergeant.
K. SLOAN, Sergeant.
G. H. WEBB, Sergeant.
W. H. ELLIOT, Corporal.
W. D. HAMPTON, Corporal.
C. R. HARRIS, Corporal.

H. W. HAYWARD, Corporal.
J. E. McPHAUL, Corporal.
T. Y. BLANTON, Corporal.

Company H.

A. C. FLUCK, Captain.
L. P. DENMARK, First Lieutenant.
W. J. SMITH, Jr., Second Lieutenant.
R. L. TATUM, First Sergeant.
L. O. HENRY, Sergeant.
V. A. JOHNSTON, Sergeant.
J. W. McLEOD, Sergeant.
J. P. ROBERTSON, Sergeant.
R. M. DUCKETT, Corporal.
J. W. HENDRICKS, Corporal.
W. E. MATTHEWS, Corporal.
W. R. RADFORD, Corporal.

GENERAL INFORMATION.

During the years in which North Carolina was emerging from the economic havoc wrought by Civil War and Reconstruction, some farsighted men began to see the necessity of rearing industrially equipped men. They felt keenly the need of competent men to build and direct new industries, and to restore the land which had been impoverished partly by slave labor. They recognized that men capable of doing what was needed would have to be educated in industrial schools and technical colleges.

The first organized body to take steps for the establishment of a State industrial institution in North Carolina was the Watauga Club. This club, composed of bright young men, explained its mission by declaring that it was "an association in the city of Raleigh designed to find out and make known information on practical subjects that will be of public use." In 1885 this club presented to the Legislature a memorial urging that body "to establish an industrial school in North Carolina which shall be a training place for young men who wish to acquire skill in the wealth-producing arts and sciences."

This memorial quickened general interest in the proposed school, and several bills looking to its foundation were introduced in the Legislature of 1885. On March 7th, one of these bills, introduced by Hon. Augustus Leazar, of Iredell County, became a law. This law provided that the Board of Agriculture should seek proposals from the cities and towns of the State, and that the school should be placed in the town offering the most inducements. The Board of Agriculture finally accepted an offer from the city of Raleigh.

Meantime, the ideas of the advocates of the school had been somewhat broadened as to the character of the proposed institution.

These men saw that Congress was about to supplement the original land grant by an additional appropriation for agricultural and mechanical colleges in each State. The originators of the conception then sought the aid of progressive farmers in order to change the school into an Agricultural and Mechanical College. Col. L. L. Polk, the editor of the newly-established Progressive Farmer, threw the weight of his paper heartily into the idea. Meetings were held in various places, and two very large meetings in Raleigh considered the proposition. As a result, the school already provided for was by action of the Legislature of 1887

changed into an Agricultural and Mechanical College, and the Congressional Land Scrip Fund was given the newly formed institution. In addition, the law directed that any surplus from the Department of Agriculture should go into the treasury of the college. Mr. R. Stanhope Pullen, one of Raleigh's most broad-minded citizens, gave the institution eighty-three acres of land in a beautiful suburb of Raleigh. Additional funds were afterwards provided by the Supplemental Morrill Bill passed by Congress in 1890, by the Nelson Bill of 1907, and by State appropriations. The first building was completed in 1889, and the doors of the College were opened for students in October, 1889. Seventy-two students, representing thirty-seven counties, were enrolled the first year. The faculty consisted of six full professors and two assistants. From this small beginning in 1889, the College has grown steadily from year to year.

The College is beautifully located on the extension of Hillsboro Street in the western suburbs of Raleigh, a mile and a quarter from the State Capitol. The site is suitable in all respects.

There is an abundant supply of water from the city mains and from twelve deep wells on the College grounds. The water is analyzed, both chemically and bacteriologically, at regular periods.

The College now owns four hundred and eighty-six acres of land. Fifteen hundred young trees and nine hundred and forty vines are growing in an orchard of twenty-five acres. Seven acres are devoted to truck growing. The campus consists of about thirty acres of rolling land, which is being improved as rapidly as circumstances permit.

BUILDINGS.

The buildings, numbering twenty-seven in all, are grouped as follows: the academic buildings; the social life buildings; and the farm buildings.

I. The academic buildings are as follows:

1. Holladay Hall.—This, the administration building of the College, is of brick with brownstone trimmings. It is 170 feet long by 64 feet deep; part of the building is four stories and the remainder two. The first floor is devoted to the lecture-rooms and laboratories of the Physics Department. The second floor contains the offices of the President, the Dean of the Faculty, the Commandant, Registrar, and the Bursar. In addition, six lecture-rooms are located on this floor. The upper stories are used by students.

2. Patterson Hall.—This is the largest of the Agricultural buildings. It is a three-story buff press-brick structure, with granite

trimmings, and is 204 feet long by 74 deep. The basement floor contains a very commodious dairy with wash-rooms and sterilization chamber. It also contains mailing rooms for bulletins. The second floor provides room for the offices of the Experiment Station, for offices, lecture-rooms, and laboratories for the departments of Agronomy, Horticulture, Soils, and Agricultural Extension. On the third floor are the rooms devoted to the offices, lecture-rooms, and laboratories of the departments of Botany and Plant Pathology, and of Physiology and Veterinary Medicine. This building contains excellently equipped laboratories, and is well lighted and ventilated. Each section of the building was designed for its specific function, and hence admirably meets the requirements of these departments.

3. Animal Husbandry Building.—This new building is a three-story brick structure, and has white brick and cement trimmings. One-half of the first floor is given to the Poultry Department. The other half is devoted to a stock-judging room. The offices, lecture-rooms, and laboratories of the Animal Husbandry Department take up all the second floor. The third floor is assigned to the Department of Entomology and Zoology. In addition to offices and laboratories, this floor contains a photographic room and a museum.

4. Winston Hall.—This is the Civil and Electrical Engineering building. It is built of brick, with reinforced concrete floors, three stories high, including the basement. It consists of a main section, 104 by 58 feet, with two wings, each 91 by 32 feet. The basement contains the laboratories and instrument rooms of the departments of Electrical and Civil Engineering. The main floor has the lecture, recitation, and drafting rooms, and the offices of the same two departments. The second floor contains the lecture and recitation rooms and the laboratories and offices of the Department of Chemistry and the Chemical Department of the State Experiment Station.

5. Mechanical Engineering Building.—A plain substantial two-story brick building furnishes room for the drawing rooms, recitation rooms and offices of a portion of the force in the Mechanical Engineering Department.

6. Textile Building.—This is a two-story brick building, 125 by 75 feet, with a basement. Its construction is similar to that of a cotton mill, and is an illustration of standard construction in this class of buildings. The basement contains the dyeing department, the first floor the looms and warp preparation machinery, and the second floor the carding and spinning machinery.

7. Primrose Hall.—Built originally for the Horticultural Department, this building, one-story and a basement, is now used for classrooms.

8. Central Power Plant.—Heat, light, and power for all the College buildings are furnished from this central station. The boiler plant consists of two 75-horse-power Babcock and Wilcox boilers and two 100-horse-power Atlas Water-tube boilers, with a working steam pressure of 150 pounds. The engine plant embraces a 100-horse-power Skinner engine and a Crocker-Wheeler generator attached; a 100 k. w. DeLaval turbine generator set with exciter; and steam and vacuum pumps for feeding the boilers and maintaining circulation in steam-heating apparatus. The buildings are equipped with Warren-Webster system of heating.

9. Shop and Laboratory Building.—All of the shop work, which includes practice in wood working, forging, machine shop and foundry, is given in the new shop building. The Mechanical Engineering laboratory is also in this building. It is a one-story and part basement structure of brick, with steel roof trusses and asbestos shingle roof. Steel sash are used throughout, and an unusual amount of light is provided. Part of the basement will be used for a portion of the Mechanical Engineering laboratory and a part for storage of materials of various kinds. The main floor consists of a machine shop 47 by 100 feet, a laboratory room 45 by 100 feet, a wood shop, 50 by 120 feet, a foundry, 35 by 75, and a forge shop, 35 by 75 feet. Provision is also made for demonstration rooms, offices and tool rooms. A wide entrance hall provides space for the exhibition of work done by students and exhibitions showing the different processes in the manufacture of many well known articles. The building is L-shaped, one dimension being 170 feet and the other 195 feet.

10. A greenhouse, with a small service building attached, serves in part as a place for instruction in cultivating plants under glass.

The Fire Protection of the College consists of the following equipment: A standpipe and reservoir, hose and hose reels. Hydrants are conveniently located about the grounds, with attached hose nozzles, etc. The buildings are supplied with chemical extinguishers.

II. The social life buildings are as follows:

1. Pullen Hall.—The basement of this large three-story colonial brick building is used as an armory. The first floor gives quarters for a splendidly-lighted reading-room and library and two lecture-rooms. The second story serves as the College auditorium, and seats about one thousand people.

2. Dining Hall.—This building, which will seat seven hundred and fifty students, is 144 by 54 feet. It is trimmed with Indiana limestone and white brick. Attached to this dining hall is a large kitchen, which is supplied with a complete modern outfit of kitchen conveniences and utensils. Serving rooms, storerooms, preparation rooms, and every needful adjunct have been provided.

3. The Y. M. C. A. Building.—The Young Men's Christian Association Building, which was opened January 31, 1913, is a three-story red brick building with Indiana limestone trimming. This building is the home of all the voluntary student activities, and is under the supervision of the Young Men's Christian Association. The basement floor contains a small gymnasium, bowling alleys, a locker-room, shower baths, toilets, and athletic rooms. The main floor contains a large lobby, a reading-room well equipped with daily papers and magazines, a game room, an auditorium, a banquet hall with pantry and kitchen attached, a committee room, a library, a kodak dark-room, four bedrooms for visitors, offices for the College weekly, monthly and annual publications, and offices of the Association. The third floor contains two large literary society halls, a cabinet room, a Bible study and a Mission study room. The building is handsomely equipped with mission furniture throughout.

4. Infirmary.—The College hospital is a two-story brick building, to which two wards have just been added. In addition to these wards there are four separate rooms, three bathrooms, an office for the College physician, and rooms for the head nurse, and a kitchen. The rooms are well ventilated, carefully lighted, and heated by steam. The furniture and equipment are modern and sanitary.

5. Watauga Dormitory.—Rooms for one hundred and twenty students are provided by this three-story brick dormitory. A large bathroom is located in the basement of this building.

6. Nineteen-Eleven Dormitory.—This is the largest and most complete dormitory on the grounds. It is divided into sections by fireproof walls, and each section is practically a separate house. It furnishes rooms for two hundred and forty students. Large and convenient bathrooms are located in the basement of the building.

7. First Dormitory.—This two-story brick dormitory has ten rooms and affords accommodations for twenty students.

8. Second Dormitory.—Built on the same plan as the First Dormitory, this building affords a college home for twenty students.

9. Third Dormitory.—Twenty students also find rooms in this small dormitory.

10. Fourth Dormitory.—This is a three-story, mansard-roofed brick structure, and furnishes rooms for forty-eight students.

Temporary Wooden Dormitories for Some Students.—In the summer of 1913, the College found itself confronted by a serious dilemma. All the rooms in its permanent dormitories were engaged. No appropriation for building a new dormitory was available. Many deserving young men who wanted to fit themselves to do an educated man's work in the industrial world were asking for admittance. Rather than close its doors to these young men whom the State is needing for its material development, the trustees of the College decided to build some cheap wooden dormitories for such earnest young men as were willing to live in them rather than miss their opportunity for a technical education. These buildings are furnished just as the other dormitories are, and are lighted by electricity. While unsightly, they are sanitary and comfortable.

III. The farm buildings constitute the third group of College buildings. These are as follows:

1. A large sanitary dairy barn.—This barn has stalls and feed-rooms for fifty cows. This barn is abundantly aired and lighted, is equipped with James sanitary fixtures, and has cement floors.

2. A barn for the work stock.—Stalls for most of the work animals and some overhead storage are supplied by this barn.

3. A storage barn.—This barn gives storage for feedstuffs for the dairy, and is also equipped with stalls for the Percheron horses.

4. A fertilizer and implement barn.—A commodious barn, which provides room for instruction in mixing fertilizers and storage for the farm implements and machines.

5. The Experiment Station barn.—This convenient building is located on the College farm and houses the work stock of the Station.

6. A calf barn.—The young stock of the College are provided with separate stalls and feeding rooms in a comfortable building on the farm site.

7. The foreman's home.—A cottage near the barns is occupied by the foreman of the College farm and by the herdsmen.

8. The Horticulturist's home.—In order that he may be near his work, the Horticulturist is provided with a home in the center of the orchard.

9. The Poultry Plant.—The plant for the poultry department con-

sists of the home of the instructor in charge, incubator and brooding house, and pens for all the fowls, and is situated just opposite the Horticultural farm, on Hillsboro Road.

THE AGRICULTURAL EXPERIMENT STATION.

The North Carolina Agricultural Experiment Station was established originally as a division of the State Department of Agriculture, in accordance with an act of the General Assembly, ratified March 12, 1877. Its work was greatly promoted by act of Congress of March 2, 1887, known as the Hatch Act, which made a donation to each State for the purpose of investigations in agriculture, and for publishing the same. The funds of the Experiment Station were further supplemented by the act of Congress of March 16, 1906, known as the Adams Act. Under the requirements of the Hatch Act, the Station became a department of the College and was conducted jointly by the College and the Department of Agriculture from 1887 to 1907, with the exception of three years. Under an agreement entered into between the Board of Trustees of the College and the Board of Agriculture in January, 1912, and authorized by act of the Legislature of 1913, the work of the Experiment Station, which covers all of the experimental work in agriculture in the State, is jointly conducted and supported by the College and State Department of Agriculture.

The experimental work in the field in agriculture, horticulture, stock and poultry raising, dairying, etc., is conducted on the College farm and on the test farms of the Department of Agriculture in different parts of the State, and the laboratory investigations are conducted in the laboratories of the two institutions.

The Station is always glad to welcome visitors and to show them the work in progress. The Station conducts a large correspondence with farmers and others concerning agricultural matters. It takes pleasure in receiving and answering questions.

Bulletins relating to general farm matters, embodying the results of the experiments, are sent free to all citizens of the State who request them. A request addressed to the Agricultural Experiment Station, West Raleigh, will bring these publications. The Station is glad also to answer letters of inquiry.

THE PURPOSE OF THE COLLEGE.

The College is an institution where young men of character, energy, and ambition may fit themselves for useful and honorable work in many lines of industry in which training and skill are requisite to success. It is intended to train farmers, mechanics,

engineers, architects, draughtsmen, machinists, electricians, miners, metallurgists, chemists, dyers, mill workers, manufacturers, stock raisers, fruit growers, truckers, and dairymen, by giving them not only a liberal, but also a special education, with such manual and technical training as will qualify them for their future work.

It offers practical and technical education in Agriculture, Horticulture, Animal Industry, Civil Engineering, Mechanical Engineering, Electrical Engineering, Chemistry, Dyeing, Textile Industry, and Agriculture. It also offers practical training in Carpentry, Woodturning, Blacksmithing, Machinist's work, Mill work, Boiler tending, Engine tending, Dynamo tending and Installation, Electric-light Wiring, Armature Winding, and other subjects relating to practical electricity.

Although the leading purpose of the College is to furnish technical and practical instruction, yet other subjects essential to a liberal education are not omitted. Thorough instruction is given in English, Mathematics, Political Economy, Physics, Chemistry, Botany, Zoology, Physiology, and Geology.

The College is not a place for young men who desire merely a general education without manual or technical training, nor for lads lacking in physical development, mental capacity, or moral fiber, nor for those who are unable or unwilling to observe regularity, system, and order in their daily work.

WHAT THE COLLEGE EXPECTS OF ITS STUDENTS.

The College does not have many rules. It expects that its students will live rightly for their own sakes and for the sake of the State that is educating them. The fundamental law of the College is this: Always and everywhere, be a gentleman.

A record is kept of every student. If it is apparent from this record that a student is not studying or that his conduct is not meeting the requirements of the College, such student will be required to withdraw. Scandalous, vicious, or immoral conduct will necessitate an immediate dismissal.

Students attend this College, of course, to fit themselves for a technical business life. They are therefore expected to be business-like in their habits; to be prompt in their attendance and regular at chapel, classes, shops, drills, inspections, and all other duties. To prepare themselves for their daily work, students are expected to observe in their own rooms the regular morning and evening hours of study, and to be absent from College only at the regularly specified periods. These periods are as follows: For Juniors,

Friday, Saturday, and Sunday nights; for Sophomores, Saturday and Sunday nights; for Freshmen, Sunday nights. Saturday and Sunday afternoons are liberty afternoons.

Students are expected to keep their rooms neat and sanitary; to refrain from disturbing one another by noise in the buildings or on the grounds—in short, to conduct themselves in their College home with the same courtesy, self-respect, and propriety that they do in their own homes.

Visiting poolrooms, leaving College after 11 o'clock at night, continued cigarette smoking, wilful destruction of College property, drinking, immorality, gambling in all forms, hazing of any kind, disrespect to members of the Faculty or officers of the College, any conduct unbecoming a gentleman—these offenses it is expected that a student's self-respect will lead him to abstain from, and should any student be found guilty of them he will be excluded from College.

REPORTS AND SCHOLARSHIP.

Regular reports of scholarship and conduct are sent to parents and guardians at the end of each term. Special reports are made whenever necessary. Students who are persistently neglectful of duty, or manifestly unable to do the work required, will be discharged at any time. The Faculty will require any student to withdraw whenever it is plain that his stay in the institution is not profitable to himself nor to the College.

RELIGIOUS INFLUENCES.

All students are required to attend chapel exercises in Pullen Auditorium each morning. These services are conducted by the President, by some member of the Faculty, or by some visiting minister or layman.

Each student is expected to attend religious service in Raleigh on Sunday morning at the church of his choice. The students are always welcomed in the Sabbath schools of Raleigh, and a large number of them attend these services.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

The Young Men's Christian Association is a voluntary organization among the students for the purpose of centralizing and directing the moral and religious life of the student body. The work is under the direction of a General Secretary, who is employed to give his entire time to the work, and of the following student officers: President, vice-president, corresponding and recording

secretaries, and treasurer. Active assistance is also given by an Advisory Committee, which includes three members of the Faculty and six prominent business men in Raleigh. The president and treasurer of the Association are *ex officio* members of this committee.

Membership is open to all College students of good moral character. Only members of evangelical churches may become active members.

A hand-book, giving general information about the College, is published each spring and sent to prospective students, with a personal letter of welcome from the officers of the Association.

A large number of men are trained each year in active Christian service through membership on the following standing committees, all of which are trained by the General Secretary in their particular work: Bible Study Committee, which has charge of the organization of voluntary Bible Study classes among the students, and in this way seeks to reach all of the non-Christian element of the student body; Religious Meetings Committee, which provides speakers and arranges programs for the weekly meetings of the Association; Mission Study Committee, which provides for Mission Study among the students; Membership Committee, which seeks to enlist students as members of the Young Men's Christian Association; Social Committee, which provides means of social entertainment and diversion; and Finance Committee. Each committee is held responsible for its part of the Association activities.

The Association is supported by gifts from the Board of Trustees, the Faculty, and citizens of the State, and by its regular membership fees. Although membership is voluntary, it is desired that all students should apply for membership, and thereby align themselves with an organization which will assist them in leading an upright life while in college.

The Association occupies its own building on the campus, which was erected at a cost of $41,000.

Parents or students wishing to obtain further information about the work of the Association may do so by addressing the General Secretary, West Raleigh, N. C.

ATHLETICS.

The Athletic Association is organized by the student body to promote physical health and manly spirit through athletic sports. Under the direction of the Athletic Committee of the Faculty it promotes practice in baseball, basket ball, football, track athletics, etc. The Association employs a director who devotes all of his time to the

interests of this department. The athletic park is situated in the center of the College campus. It is provided with a grandstand and uncovered seats and meets the needs of the various athletic teams.

It is the aim of the College to encourage participation in athletic sports by all students as far as possible. In order to promote interest in athletics the College teams are allowed to play a limited number of games with the teams of other colleges. While all students are allowed and encouraged to take part in intramural games, the College recognizes that college athletics are promoted for the benefit of its bona-fide students, and in order to prevent abuses the following regulations in regard to intercollegiate games are in force:

Eligibility Rules of the North Carolina College of Agriculture and Mechanic Arts.

Any student of good and regular standing shall be eligible to represent this College in athletic contests, subject to the following conditions:

1. Before any student can become a member of any athletic team in the College and take part in any intercollegiate contest, he must apply to the Faculty Committee on Athletics and secure its approval of his application. It shall be the duty of the Faculty Committee on Athletics to see that the said student is properly enrolled in the College.

2. It shall be the duty of the Athletic Committee to inquire into and make record of the athletic experience of the applicant, and it shall be the duty of the applicant to appear before the committee and answer on his honor such questions as the committee may see fit to ask.

3. No student shall take part in any contest who has taken part in intercollegiate contests for four academic years, either at this College or at any other college or university.

4. No student shall participate who is receiving, has received, or has been promised, directly or indirectly, any money or financial concessions as compensation for, or prior consideration to his playing.

5. No student shall participate in athletic sports who does not matriculate within thirty (30) days of the opening date of the current session.

6. No student shall participate who has played baseball on any league team belonging to the National Association, or to any league recognized by the National Baseball Commission as an "outlaw league"; or who has missed any time from College work in order to play on any organized so-called "summer baseball team."

7. No student who is recognized by the Athletic Council as a member of any team shall be eligible the following session, unless he has remained as a resident student two-thirds of the preceding session, and can give satisfactory reason for not remaining the whole session.

8. No graduate student who is not a bona-fide applicant for a degree conferred by this College shall be allowed to participate.

9. No person whose name appears in the Catalogue list of officers of instruction or administration of the College and who receives remuneration therefor shall be a member of any athletic team representing the College.

10. No undergraduate student shall take part in any athletic contest who is not pursuing one of the regular prescribed courses of instruction or its equivalent, nor will he be allowed to participate if his class work be unsatisfactory.

11. No student shall be allowed to represent the College in any intercollegiate contest during any month if he has been reported deficient on a majority of his work for the preceding month.

12. No student who has been a member or a substitute member of the football or baseball team of another college or university during the preceding year shall be permitted to become a member of either team at this College during his first session. In no case shall such student be eligible for these teams at this College unless he shall have been a student here for at least one-half of the preceding session; and no student who is able to pass examination on two-thirds of the work required for admission to the Freshman class shall be allowed to participate until he has been in College one term.

13. The object of these rules is to allow only bona-fide students to take part in athletic contests, and if it shall appear to the Faculty and Athletic Committee that any student is, or has ever been, a professional athlete, or that he is in college for the purpose of taking part in athletics and not of getting an education, such student shall not be allowed to represent the College in any athletic contest.

Note 1.—The term substitute is interpreted to mean any student who has taken part in two or more intercollegiate contests.

Note 2.—The term college is interpreted to mean any college named in the latest report of the Commissioner of Education which has as many as one hundred and fifty male students of collegiate grade recorded in its catalogue for the preceding year.

Note 3.—The term session is interpreted to mean a college year of two terms.

LIBRARY AND READING-ROOM.

The College Library occupies the first story of Pullen Hall. The reading-room is supplied regularly with about one hundred and

fifty magazines and journals of various kinds, and yearly additions are being made to this number. The library contains about eight thousand volumes. There are also reference libraries in the different departments. The library is kept open from 9 a. m. to 6 p. m. The Librarian is always present to assist students in finding desired information.

The Olivia Raney Library in Raleigh, containing now about fourteen thousand volumes, is free to students, and they have the privilege of borrowing books from it.

Students are also allowed to consult books in the **State Library.**

STATE MUSEUM.

Students have free access to the large collections of the State Museum. These collections furnish most excellent opportunities for studies in Geology, Mineralogy, Mining, Forestry, and Natural History.

COLLEGE SOCIETIES.

Such college organizations are encouraged as tend to form good character, to develop manly physical vigor, and to promote literary, scientific, and technical research and training.

The Biag Society is composed of those students who have made the best record in biological and agricultural subjects. The membership is limited to twelve. The society meets monthly for the discussion of biological and agricultural questions.

Farmers' Progressive Association.—The students in the Winter Course in Agriculture meet every Wednesday night during the winter term for a discussion of practical problems. The meetings are conducted in the manner of a Farmers' Institute, and give training in conducting farmers' meetings, in *ex tempore* speaking on agricultural questions, and in the writing and reading of reports on various farm operations.

The Rural Science Club meets semimonthly for the discussion of agricultural subjects, review of current agricultural publications, and reports on personal experiments and the work of the College farm and Experiment Station.

The Biological Club meets semimonthly for the discussion of biological subjects in their relation to practical agriculture. Students here present results of their own investigations and observations and reviews of the more important current publications, particularly those from the United States Department of Agriculture and the State Experiment Stations.

The Tompkins Textile Society.—The purpose of this society is to discuss textile problems and other subjects in connection with the textile industry. Meetings are held fortnightly, and great interest is taken in them by the textile students.

The Mechanical Engineering Society meets every week for the discussion of engineering subjects. The society is composed of Seniors and Juniors taking the Mechanical Engineering Course. Its work has proved very beneficial to its members.

Electrical Engineering Society.—A student branch of the American Institute of Electrical Engineers was organized at the College several years ago. It holds weekly meetings for the reading and discussion of papers. At convenient intervals the society makes trips for inspecting interesting electrical installations. From time to time addresses are made by visiting engineers.

Berzelius Society meets fortnightly for discussion of chemical topics, and for reports upon the leading articles in the chemical journals.

The Pullen and Leazar Literary Societies afford excellent opportunities for practice in declamation, debate, composition, and parliamentary law, as well as opportunities for social pleasure and recreation.

The Alumni Association meets each year on the Monday preceding Commencement Day, transacts its annual business, hears the Alumni oration, and attends the annual Alumni banquet. This association purposes raising funds to erect an Alumni building at the College.

The Poultry Science Society is a society for the promotion of the interests of poultry study. Weekly meetings are held, at which programs on poultry topics are carried out. Membership is open to all students interested in the study of poultry subjects.

REQUISITES FOR ADMISSION.

Each applicant for admission must be at least sixteen years of age and must bring a certificate of good moral character from the school last attended.

To the Four-year Courses.

Admission to the Freshman Class of all four-year courses is by the unit system. A unit is defined as a subject pursued in schools of approved grade for five periods a week throughout the year, each period being at least forty-five minutes in length. Each applicant, selecting from the subjects named in the lists below, must, on ex-

amination, make eight units, the credit on any one subject not to exceed the value indicated. Of these eight units the following are required for all four-year courses:

Required Units.

SUBJECT.	UNITS.
Algebra	1½
English	2
United States History	1
Total units in required subjects	4½
Geometry (Engineering Courses and Chemistry)	½

The 1½ units required in Algebra must cover the subject to quadratic equations.

Of the 2 units required in English, 1 unit must be in grammar and composition and 1 unit in literature.

Additional Units.

In addition to the four and one-half units in required subjects given in above list, applicants wishing to take the Agricultural Course, the Veterinary Course, or the Textile Course must offer three and a half units selected from the list below. Applicants wishing to enter an Engineering course or the Chemical course must offer, in addition to the above required units, ½ unit in geometry and three units selected from the list below. The ½ unit in geometry must include the first three books of Plane Geometry.

Elective Units.

SUBJECT.	UNITS.
Agriculture or Farm Practice	1
Botany	½ or 1
Bookkeeping	½
Chemistry	½ or 1
Civics	½
Drawing (Freehand or Mechanical)	½
English History	1
Mediaeval and Modern History	1
French, German or Spanish	1
Latin	2
Manual Training	½
Mill Practice	½
Physics	½ or 1
Physiology	½
Zoology	½ or 1

A full unit will be allowed for any one science only when the subject has been given with laboratory practice.

Admission on Certificate.—Applicants for admission to the Freshman Class, who present certified statements from principals of high schools or academies of approved standing that the applicant has satisfactorily completed the eight units required by the College, will be admitted without further examination. These certificates must be submitted to the Dean of the College for approval.

To the Two-year Courses.—Applicants for admission to the two-year courses in Agriculture, Mechanic Arts, and Textile Industry will be examined on Arithmetic complete, English Grammar and Composition, and American History.

To the One-year Course in Agriculture.—Applicants for admission to the One-year Course in Agriculture will be required to pass on Arithmetic through decimal fractions, on English Grammar, and on United States History.

To the Winter Courses.—No entrance examination is required of candidates for admission to the winter courses. No one under eighteen years of age will be admitted to a winter course.

ENTRANCE EXAMINATIONS AT COUNTY SEAT AND AT COLLEGE.

Entrance examinations will be held by the County Superintendents of Instruction in each courthouse in the State at 10 o'clock a. m. the second Thursday in July of each year. The date for 1915 is July 8. These examinations will save the expense of a trip to Raleigh in case the candidate should fail or in case there should not be room enough for him in the College. Entrance examinations will be held also at the College at 8:30 o'clock a. m. on the Wednesday preceding the opening day. The examinations begin with English at 8:30 a. m., in Room 18, Holladay Hall, followed by Mathematics at 10, and History at 2, in the same room. The date for 1915 is August 31.

ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

1. Applicants for admission to winter courses, if over eighteen years of age.
2. School teachers, holding teachers' certificates, if the holders are sufficiently familiar with Algebra and Geometry.
3. Graduates of those high schools and academies whose certificates are accepted by the Faculty of this College.

ADVANCED CREDIT.

Students who have attended colleges of approved standing will be allowed credit for work done upon the presentation of proper certificates to the Dean, who, with the heads of the departments concerned, will determine their value.

SESSION.

The College session lasts nine months, and opens annually the first Thursday in September and closes the last Tuesday in May, with a vacation of about two weeks at Christmas.

EXPENSE.

The total average college expense of a Freshman student is $235.

The total average college expense of a Freshman student having a scholarship is $190.

These amounts include cost of board, tuition, lodging, fuel and lights, fees and deposits, books, uniform and cap, and drawing instruments. They do not include allowance for clothing, other than for uniform and cap, nor for spending money and contingencies.

Allowance for clothing, spending money, and contingencies should be kept within reasonable bounds. The allowances which parents make their sons for contingencies and spending money, it is suggested, should be kept small; for small allowances frequently take away temptation to unwise living.

DETAILED INFORMATION.

The largest payment is made in September. On entrance, a Freshman student will need $85 to meet all of his various payments for the first month. But of this amount a payment of $22.50 for tuition may be deferred, if desired, to the first of November. This will reduce the first, or entrance, payment to $62.50. This amount includes payment to the College of $45 (this may vary one or two dollars according to the course of instruction); a deposit of $5 with the dealer for uniform and cap, and $12.50 for the purchase of books and incidentals. In the case of day students, or students rooming and boarding out of College, tuition will be paid on entrance.

Board is $11 per month, payable in advance on the first day of each calendar month from September through to May. Board for less time than one month is charged for at the rate of 40 cents a day. Refunds for board will be made on the basis of these charges.

Students withdrawing from College within two weeks from date of entrance will be refunded all money paid by them to the College Bursar except charges for board and lodging during the time they are in College. In special cases the right is reserved to modify or entirely revoke this rule.

Refunds to students withdrawing later than two weeks from date of entrance will be made in proportion to the length of time they are in college. The right in special cases to modify or to revoke this rule is reserved.

EXPENSE BY MONTHS.

The following is a statement of the College expenses of a Freshman student by months, for Civil, Electrical, and Mechanical Engineering divisions:

SEPTEMBER: Room rent, fuel and lights, $15; incidental fee, $2; medical and hospital fee, $3; lecture fee, $1; library fee, $1; furniture fee, $1; physical culture fee, $3; military equipment deposit, $5; mechanical and physical laboratory fees, $3; board for September, $11; a total of $45 to be paid to the College. Tuition for one-half session, $22.50, may be paid at this time, which will make a total of

$67.50 to be paid to the College. In addition, there is required by the merchant a deposit of $5 for uniform and cap when the measure of the student is taken; and about $10 to $15 is required to buy books and drawing instruments, and for incidentals.

An Agricultural, Chemical, or Textile Freshman pays $1 more than Engineering students.

OCTOBER: Board, $11, and balance to merchant for uniform and cap, $15.

NOVEMBER: Board, $11; tuition, if it was not paid in September, $22.50.

DECEMBER: Board, $11.

JANUARY: Tuition, $22.50; lodging and fuel and lights, $15; medical and hospital fee, $3; furniture fee, $1; physical culture fee, $3; board $11. A total of $55.50.

FEBRUARY: Board, $11.

MARCH: Board, $11.

APRIL: Board, $11.

MAY: Board, $11.

The amount of the September or entrance payment for students varies slightly with the class, the course, and the division. This variation is caused by the additional collection of fees and deposits for laboratory work and for supplies. The amount of these fees and deposits is given in the table below, for all classes and courses.

COURSES.	Long Courses.				Short Courses.		
	Seniors.	Juniors.	Sophomores.	Freshmen.	Two-year—Second.	Two-year—First.	One-year.
udents in Agriculture—							
Agronomy Division	$ 3.00	$11.00	$ 9.00	$ 4.00	$6.00	$1.00	$ 6.50
Animal Husbandry Division	2.50	11.00	9.00	4.00	------	------	------
Horticulture Division	2.00	10.00	9.00	4.00	------	------	------
Normal Division	3.00	10.00	9.00	4.00	------	------	------
Veterinary Division	9.50	11.00	9.00	4.00	------	------	------
udents in Civil Engineering	1.00	1.00	5.00	3.00	------	------	------
udents in Mechanical Engineering	2.00	3.00	6.00	3.00	2.00	2.00	------
udents in Electrical Engineering	2.00	4.00	6.00	3.00	------	------	------
udents in Chemistry	13.00	13.00	6.50	4.00	------	------	------
udents in Textile Industry	8.00	7.00	7.00	4.00	8.00	5.00	------
udents in Textile Dyeing	10.00	10.00	7.00	4.00	------	------	------
udents in Normal Course for Teachers	------	------	------	------	8.00	6.50	7.50

Note.—The College Bursar is forbidden by the Trustees to give credit.

All unused deposits are refunded to the student at the end of the session or upon his withdrawal from College. If he has overdrawn his deposit he is required to pay the amount of the overdraft.

If the student has a scholarship, he does not pay tuition.

Students entering after September will pay on entrance all the items enumerated under "September," less a credit in part for tuition and room rent.

WHAT A STUDENT NEEDS FOR HIS ROOM.

The College rooms are supplied with necessary furniture. Each student, however, should bring with him two pairs of blankets, two pairs of sheets, one pillow and two cases, and two bedspreads for a single bed.

SCHOLARSHIPS CARRYING FREE TUITION.

1. Regular Scholarships.—When the College was chartered the Legislature required the Trustees to admit, free of tuition, one hundred and twenty young men. The only conditions attached to

these scholarships are that they shall go to young men (1) who are unable to pay for all their education, and (2) who are of excellent moral character. As far as possible these appointments are distributed among the different counties. Appointments are made by the President of the College, after inquiries as to the needs and character of applicants and after a written recommendation from a member of the Legislature from the applicant's county. Certificates of inability to pay have to be made by the applicant and his parents. Blanks are furnished for this purpose.

2. Agricultural Scholarships.—The Legislature of 1913 authorized the College Trustees to give a limited number of agricultural scholarships to students who agree to teach for two years in an agricultural school, or to serve in an agricultural experiment station, or to farm in the State for two years after graduation. The same conditions as to financial inability and moral worth go with these scholarships as go with the regular ones.

3. Southern Railway Scholarships: William Wilson Finley Foundation.—The Southern Railway, under the above foundation, offers four scholarships, each valued at $75 a year, to needy and worthy young men who live in counties traversed by any line of the Southern Railway, and who wish to study agriculture.

4. Norfolk Southern Railway Scholarships.—Two scholarships, each valued at $75, are given by the Norfolk Southern Railway to deserving young men who reside in counties on the lines of this railway. These are awarded only to agricultural students.

5. The John L. Roper Lumber Company Scholarships.—This company gives yearly two scholarships that cover an agricultural student's tuition. Like the other scholarships, these are intended for young men of good character and of needy circumstances.

6. Mr. R. M. Miller, of Charlotte, offers a scholarship to one student in the Textile School. This scholarship covers the tuition of the holder.

SELF-HELP.

Some students who are alert and energetic frequently earn part of their expenses in College. Some of the agricultural students find work at odd hours on the farm, in the orchard, in the barn, in the dairy. Some students act as agents for laundries, for furnishing-houses, for pressing clubs. The College employs a few students for the dining-room and for other purposes. A student's ability to help himself will depend largely on his own power to find work and to hold it after he finds it. It must, however, be remembered that the duties of the classroom take most of a student's time. College duties begin at 8 a. m. and do not end until 4 p. m., and then drill comes

from 4 p. m. to 5 p. m.; hence hours for remunerative work are very limited.

STUDENT LOAN FUND.

The Alumni Association of the College established in the year 1900 a small fund to be lent to needy students of talent and character. This has been augmented from various sources and now amounts to $4,663.70. The loans are made at 6 per cent, and good security is required. Sufficient time for repayment is given to enable the student to earn the money himself. The amount lent to each student is limited. The purpose is to help young men who are willing to help themselves and who can not find sufficient employment while in college to meet all their necessary expenses.

Contributions are solicited for this fund from students, alumni, and friends of education generally. The fund is administered by the College Bursar, under the direction of the President.

TIME OF REGISTRATION.

All students are required to register within twenty-four hours after reaching Raleigh. A failure to comply with this rule may lead the Faculty to decline to allow an applicant to register. A registration fee of $5 will be charged to students failing to register on the day appointed.

BOARD AND LODGING.

All students are required to board in the College dining hall or in approved boarding-houses near the College, and to room in the College dormitories. An abundant supply of plain, nourishing food, with as large a variety as possible, is furnished absolutely at cost. The charge at present is $11 per month, payable in advance.

Rooms in the College dormitories are supplied with electric lights, steam heat, and all necessary furniture, except sheets, blankets, pillow-cases, pillows, bedspreads, and towels, which each student must furnish for himself. The charge for lodging is by the month, and there is no reduction in case of withdrawal.

DRILL.

In return for the Morrill Fund of the United States Government, the College is under contract to require its students to drill at least three times each week, and an Army officer is detailed to conduct the drills. No student will be excused from drill unless the College Physician, after examination, deems him unfit for military duty.

UNIFORM.

The College uniform must be worn by all students when they are on military duty. It must be bought at the College from the regular contractor. The uniform is of strong gray cloth and with proper care should last two or three years.

No uniform overcoat is required, but every student should bring a comfortable overcoat with him.

CARE OF THE SICK.

Every effort is made to protect the health of young men in the College. Regular inspections of the entire institution are made once a year, or oftener, by the State Board of Health. Similar inspections are made monthly by the College Physician.

Each student has a regular routine of daily life, including abundant physical exercise in the shops and on the drill grounds.

In case of sickness, a student is taken immediately to the College Infirmary, where he receives medical attention and careful nursing.

The College Physician visits the Infirmary daily at 3 o'clock p. m., and in cases of serious illness as frequently as may be required.

A trained nurse has charge of the Infirmary at all times. The payment of the medical fee entitles a student to all the privileges of the Infirmary; and this includes the regular visits of the College physician for all ordinary sickness. However if a special nurse is needed in case of serious contagious disease or in case of other serious illness, parents are of course expected to pay such nurse or nurses. The medical fee does not cover special surgical operations or the attention of any medical specialist.

VACCINATION.

By direction of the Trustees, no young man will be registered unless he has been successfully vaccinated within the past two years. The College greatly prefers that all applicants for admission should be vaccinated at home, and that a certificate of successful vaccination within the past two years be brought from the family physician. In case this cannot be done, the College Physician will vaccinate applicants before they are registered at the College. A blank form to be filled by the home physician will be mailed on application. It will save a great deal of time and trouble, therefore, to be vaccinated before applying for registration. In this way applicants will avoid the inconvenience and discomfort resulting from vaccination while at College. The size of scar resulting from a previous vaccination is not proof that revaccination is not needed.

TYPHOID INOCULATION.

Believing that students may be safeguarded from typhoid fever by inoculation against this disease, to which young people are peculiarly susceptible, the College offers this preventive free of charge, and urges, but does not require, all its new students to take the treatment. Parents are requested to join the College in recommending that their sons be inoculated here or to have them inoculated at home.

COURSES OF INSTRUCTION.

The College offers courses of instruction in the following subjects:

I. Agriculture.

(*a*) **Four-year course** including Agronomy, Soils, and Drainage, and Agricultural Chemistry; Animal Husbandry, Dairying, and Poultry Husbandry; Horticulture and Botany; Veterinary Science; Normal Course.

(*b*) **Two-year Course in Agriculture.**

(*c*) **One-year Course in Agriculture.**

(*d*) **Work Course in Agriculture.**

(*e*) **Four-weeks Course in Agriculture and Dairying,** beginning at the opening of college in January.

These courses are described on pages 46-96.

II. Engineering, Mechanic Arts, and Chemistry.

(*a*) **Four-year Course in Civil Engineering.** Pages 99-102.

(*b*) **Four-year Course in Mechanical Engineering.** Pages 103-114.

(*c*) **Two-year Course in Mechanic Arts.** Pages 115-119.

(*d*) **Four-year Course in Electrical Engineering.** Pages 122-127.

(*e*) **Four-year Course in Chemistry.** Pages 129-138.

III. Textile Industry.

(*a*) **Four-year Textile Course.** Pages 143-147.

(*b*) **Four-year Dyeing Course.** Pages 147-156.

(*c*) **Two-year Textile Course.** Pages 157-161.

IV. Normal Courses for the training of teachers in industrial subjects.

(*a*) **Two-year Course in Agriculture.** Page 163.

(*b*) **One-year Course in Agriculture.** Page 164.

(*c*) **Summer Term for Teachers.** A four-weeks' course in the sciences underlying modern agriculture, and in their practical application. See page 165.

V. Graduate Courses.

Extending over one or more years and leading to advanced degrees. These are intended for students who have completed the

four-year course and who desire further instruction and training in special subjects. Page 166.

VI. Degrees.

The four-year courses offer a combination of practice and theoretical work, about half the time being devoted to lectures and recitations and the other half to work in the shops, laboratories, drawing-rooms, greenhouses, dairies, poultry yards, fields, and mills. They are intended to furnish both technical and liberal education. The degree of Bachelor of Science is conferred upon a graduate of the four-year courses in Agriculture, in Chemistry, and in Dyeing; and the degree of Bachelor of Engineering is conferred upon a graduate of the four-year Engineering course, or the four-year Textile course.

The short courses include nearly all of the practical work of the four-year courses with less theoretical instruction. They are intended for students who desire chiefly manual training. They do not lead to a degree.

AGRICULTURAL COURSES.

a. A Four-year Course in Agronomy.
b. A Four-year Course in Animal Husbandry.
c. A Four-year Course in Horticulture.
d. A Four-year Course in General Agriculture, for prospective secondary agricultural school teachers.
e. A Two-year Course in General Agriculture.
f. A One-year Course in General Agriculture.
g. A Work Course in General Agriculture.
h. A Four-weeks Winter Course for Farmers.

Aim and Scope.—The aim of the Agricultural Courses is to train young men in both the science and the practice of their vocation. It is believed that every young man preparing to farm needs a double education—one that is practical, to fit him for his profession; another that is cultural, to fit him to live.

In order to meet the necessities of all young men who desire instruction in Agriculture, the College offers eight distinct courses:

a, b, c, and d. The Four-year Courses are designed to give a thoroughly practical as well as scientific training in Agriculture and its chief branches of Agronomy, Animal Husbandry, and Horticulture. The strictly technical portion constitutes about one-third of the work. Of the remaining two-thirds of the course, more than one-half is prescribed in the sciences. This is done for the training and information they give, and to prepare for the technical work of the course. Because of this, and because the subject-matter and the methods of the technical portion lie so fully within the domain of science, these courses are essentially scientific rather than literary. Yet the College is mindful of the fundamental character of such studies as Mathematics, English Literature, Physics, etc., and they are not neglected in this course. **Full description of the Four-year Courses begins on page 48.**

e. The Two-year Course in Agriculture is offered to meet the necessities of young men who wish to prepare themselves in the art rather than in the science and art of agriculture. This course does not lead to graduation, but is designed to help young men better fit themselves by a year or two of practical work for their chosen sphere of industrial activity in the garden, orchard, on the farm, and in the production of animals and animal products. **The Two-year Course is described on page 78.**

f. The One-year Course in Agriculture is designed to meet the needs of young men who are ambitious to excel in the vocation of farming, and who feel the need of better preparation for their life-work. The time which can be devoted to study is often limited; hence the topics in this course have been arranged in such a manner that the student is enabled to get the greatest amount of practical information in the time at his disposal.

Education and training pay on the farm as elsewhere. The young man who prepares himself for his life's work will make more rapid strides and will gain success much more quickly than the one who does not.

The College has numerous calls for young men to manage farms and estates. It is able to fill only a limited number of them. Young men who have any talent along this line can fit themselves for this work by taking this course. **The One-year Course is described on page 83.**

g. The Work Course in Agriculture.—Practically the same work as that offered in the One-year Course in Agriculture, but extended over two years. Work Course students devote only half of their time to classes, being employed on the College farm for the other half. In this way they are able to earn their living while in school. **The Work Course in Agriculture is described on page 86.**

h. The Four-weeks Winter Course in Agriculture is established to meet the needs of those who can spend only the winter at the College. The important and practical subjects of Agriculture and Horticulture and Stock-raising receive principal attention. **The Four-weeks Course is described on page 90.**

Methods of Instruction.—Instruction is by laboratory and field work, supplemented by text-books, lectures, and reference readings, which are assigned from standard volumes and periodicals.

The equipment for the technical work of the Agricultural course is rapidly increasing. The Dairy Department is equipped with a modern creamery for pasteurizing, separating, creaming, and churning, and for investigation in dairy bacteriology.

The department makes free use of the fields, orchards, and gardens, in which the Agricultural Experiment Station conducts experiments in methods of culture, in effects of several practices on yield and on fertility, and in varieties of fruit, of vegetables, and of forage crops. The methods employed and the results obtained are freely used for instruction.

DEPARTMENT OF AGRICULTURE.

I (a). Four-year Course in Agriculture.

This course leads to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mathematics, 110, 111	5	5
English, 120, 121	3	3
Botany, 30	3	3
Agriculture, 1	3	0
Animal Husbandry, 40	0	3
Inorganic Chemistry, 90	2	2
Inorganic Chemistry, Laboratory, 91	1	1
Drawing, 152, and Wood Shop, 150	2	2
Drill, 153	3	3
Totals	22	22

Sophomore Year.

Farm Equipment, 2	0	2
English, 122, 123	3	3
Analytical Chemistry, 92	3	3
Zoology, 80	0	3
Physiology, 60	0	3
Botany, 31	3	0
Dairying, 48	3	0
Vegetable Gardening, 21	0	3
Plant Propagation, 20	3	0
Physics, 100	3	3
Geology	2	0
Tactics, 154	1	1
Drill, 153	3	3
Totals	24	24

AGRONOMY DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agronomy, 3 and 4, Cereals	4	4
Soils, 10	3	3
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Poultry, 50	3	0
Entomology, 85	2	2
Analytical Chemistry, 93, and Agricultural Chemistry, 94	3	3
English, 124	3	3
Drill, 153	3	3
Totals	24	24
Modern Languages, 140, 143	3	3

Senior Year.

Agronomy, 5, Farm Crops	3	3
Agronomy, 6	0	3
Farm Management, 7	3	0
Drainage, 12, and Fertilizers, 11	2	2
Practical Pomology, 22, and Plant Breeding, 25	3	3
Plant Diseases, 32	2	2
Organic Chemistry, 95	2	2
Economics, 130, 131	3	3
Elective	4	4
Totals	22	22

Elective.

English, 125, 126	3	2
Pruning and Orchard Protection, 24	0	3
Poultry, 51, 52	3	3
Animal Husbandry, 44	3	3
Modern Language, 141, 144	3	3
Soils, Advanced, 13	3	3

HORTICULTURAL DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Animal Husbandry, 43	0	3
Bacteriology, 33	0	3
Analytical Chemistry, 93, and Agricultural Chemistry, 94	3	3
English, 124	3	3
Entomology, 84	3	0
Practical Pomology, 22	3	0
Greenhouse Construction, 23	3	0
Pruning and Orchard Protection, 24	0	3
Plant Breeding, 25	0	3
Poultry, 50	3	0
Soils	3	3
Drill, 153	3	3
Totals	24	24
Modern Languages, 140, 143	3	3

Senior Year.

Agronomy, 3 and 4, Cereals	4	4
Drainage, 12, and Fertilizers, 11	2	2
Botany, Plant Diseases, 32	2	2
Horticultural Entomology, 87	2	2
Greenhouse Management, 26	3	0
Systematic Pomology, 27	3	0
Landscape Gardening, 28	0	3
Horticulture—Elective, 29	0	3
Economics, 130, 131	3	3
Elective	3	3
Totals	22	22

Elective.

Farm Management, 7	3	0
Agronomy (5) Crops	0	3
Modern Languages, 141, 144	3	3
Organic Chemistry, 95	2	2
English, 125, 126	3	3

ANIMAL HUSBANDRY DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 124	3	3
Soils, 10	3	3
Veterinary Medicine, 61, *a*, *b*[1]	3	3
Poultry, 50	3	0
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Zoology, 81	3	0
Entomology, 86	0	3
Analytical Chemistry, 93, and Agricultural Chemistry, 94	3	3
Drill, 153	3	3
Totals	24	24
Modern Languages, 140, 143	3	3

Senior Year.

Animal Husbandry, 44	3	3
Animal Husbandry, 45[2]	3	3
Economics, 130, 131	3	3
Agronomy, 3 and 4, Cereals	4	4
Agronomy, 5, Farm Crops	0	3
Farm Management, 7	3	0
Dairy Bacteriology, 35	3	0
Advanced Dairying, 49	0	3
Elective[3]	3	3
Totals	22	22

Elective.

Animal Husbandry, 46, 47	3	3
Veterinary Medicine, 62 *a*, *b*	3	3
Organic Chemistry, 95	2	2
English, 125, 126	2	2
Poultry, 51	0	3
Economics, 132, 133, 134		
Modern Languages, 141, 144	3	3

Students electing Poultry as major work in Animal Husbandry Course take [1]Poultry 51; [2]Poultry 52 and 53; [3]Poultry 54 and 55.

VETERINARY DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Anatomy and Clinics, 64	3	3
Histology, 63	3	2
Materia Medica, 65	0	3
English, 124	3	3
Agronomy, 3, Cereals, 4	4	2
Poultry, 50	3	0
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Organic Chemistry, 95	2	2
Drill, 153	3	3
Totals	24	24
Modern Languages, 140, 143	3	3

Senior Year.

Anatomy and Clinics, 67	3	3
Physiology, 68	3	3
Pathology and Bacteriology, 69	2	2
Pharmacy, 70	3	0
Diagnosis, 71	0	3
Animal Husbandry, 44	3	3
Agronomy, 7 and 5	3	3
Dairy Bacteriology, 35	3	0
Zoology, 82	0	3
Elective	2	2
Totals	22	22
Modern Languages, 141, 144	3	3

NORMAL DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 124	3	3
Organic Chemistry, 95	2	2
Soils, 10	3	3
Agronomy, 3 and 4, Cereals	4	4
Entomology, 84	3	0
Economics, 130, 131	3	3
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Drill, 153	3	3
Totals	24	24
Modern Languages, 140, 143	3	3

Senior Year.

Drainage, 12, and Fertilizers, 11	2	2
Plant Diseases, 32	2	2
Entomology, 87	2	2
Plant Breeding, 25	0	3
Poultry, 50	3	0
Agronomy, 7 and 5	3	3
Elective	10	10
Totals	22	22

Elective.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 125, 126	3	3
Practical Pomology, 22	3	0
Landscape Gardening, 28	0	3
Analytical Chemistry, 93, and Agricultural Chemistry, 94	3	3
Modern Languages, 141, 144	3	3
Economics, 132, 133, 134	3	3
Bacteriology, 34	3	3
Zoology, 83	3	3
Soils, 13	3	3
Animal Husbandry, 44	3	3
Veterinary Medicine, 62*b*	0	3
Advanced Physiology, 62*a*	3	0

AGRICULTURAL EQUIPMENT.

In addition to Patterson Hall and the Animal Husbandry Building, with their classrooms, laboratories, dairy, stock-judging room and offices, the College possesses the following equipment for instruction in Agriculture:

The farm includes four hundred and eighty-five acres, with two hundred and sixty acres under cultivation; a two-story sixteen-stall horse and storage barn; a fifty-stall dairy barn; a large combination horse, implement, and storage barn; a large implement, fertilizer and grain barn, and a calf barn; silos with capacity for four hundred tons of silage; a No. 17 Ohio feed and ensilage cutter operated by an electric motor, and implements and machinery necessary for up-to-date farming.

The live stock consists of the necessary Percheron mares and mules, a Percheron stallion, a herd of dairy cattle, and pure-bred swine. Breeding stock is sold as a part of the farm products.

The poultry plant has a number of breeding pens with necessary yards, the houses being of two different types well suited to poultry-keeping in North Carolina; an incubator room with three makes of incubators; a brooder house partially heated by hot water,

and several makes of indoor brooders. Ten or fifteen varieties of poultry are kept, and eggs and breeding fowls are sold to the public.

The horticultural equipment consists of about thirty acres in tree fruit, nuts, vineyard, berries, and vegetables, in appropriate assortment of classes and varieties for demonstration and instruction. These afford means for work in seed selection, bud studies, propagation, budding, grafting, transplanting, pruning, spraying, and variety study.

The dairy equipment is complete and thoroughly modern. The laboratory occupies about four thousand feet of floor space in Patterson Hall, and is equipped for instruction in farm dairying, retailing milk, creamery practice, cheese and butter making, milk testing and pasteurizing. The dairy equipment is modern and complete.

The North Carolina Experiment Station is a department of the College, and its close association with the School of Agriculture gives exceptional opportunities to the Agricultural students for instruction and observation, covering experiments and research in agronomy, chemistry, horticulture, vegetable pathology, plant diseases, bacteriology, dairy and animal husbandry, poultry husbandry, veterinary science, and entomology.

AGRONOMY.

Equipment.

The class rooms, laboratory, offices, storage, supply and fertilizer rooms are in Patterson Hall. The Department has the necessary accessories for present-day instruction in agronomy, and additions are made as needed. The Department operates the College farm of about one hundred and forty acres. A large horse barn with corn bins, harness rooms, and hay mows, accommodates a dozen mules and Percheron mares. Another large three-story barn accommodates seeds, supplies, tools, implements and machinery for operating the farm and for giving practical farm work to students. A portion of the farm is set aside for the exclusive use of students in securing practical farm experience with very nearly all of the farm crops of the State. This practice work includes soil preparation, mixing and applying fertilizers, cultivating and harvesting, crop breeding and laboratory study of the crops grown by the students. The field, laboratory and class instruction are the three parts of the student's work which together make up the course of instruction in Agronomy.

Subjects of Instruction.

1. Agriculture.—This course is introductory to agriculture in its broader sense, and is popular rather than technical. The simpler principles and practices of the farm in relation to soils, plants, tillage, fertilizers and the conservation of fertility are among the subjects first taken up. This is followed by a brief discussion of the crops of the State, seed selection, rotation, etc. The remainder of the course is devoted to a rather comprehensive study of the corn plant, including soils, fertilizer and rotations suitable to this crop; seed selection and corn judging; uses, etc. Three periods, first term. Required of Freshmen. Professor NEWMAN.

2. Farm Equipment.—Selecting, laying out and equipping farms; locating, planning and constructing farm buildings; fences, gates, bridges, roads; tools, implements and machinery; miscellaneous appliances; farm power; water supply and sanitation. Two periods, second term. Required of Sophomores. Professor NEWMAN.

3. Agronomy: (a) Cereals.—The history, production, uses and improvement of corn, wheat, oats and other cereals adapted to the State. Two periods through Junior year for Agronomy, Veterinary and Normal Divisions; through Senior year for other divisions. Mr. HODSON.

4. Agronomy: (b) Cereals.—This is a Laboratory and Field Practice Course, and parallels the Agronomy 3 course described above. One period through the year is devoted to laboratory and class work and one period through the year to field practice. A portion of the college farm is set aside for the growing of various farm crops by the students, that they may become familiar with crops and the methods of their culture. Each student is required to keep a complete record of all operations, including date of seeding, amount of seed, preparation of soil, fertilization, and other details involved in crop production, beginning with seeding, and extending through harvesting. Required of Juniors in Agronomy, of Normal and Veterinary divisions, and of Seniors in Horticulture and Animal Husbandry divisions. Mr. HODSON.

5. Agronomy: Farm Crops.—This course is a continuation of the Junior Courses 3 and 4, and includes crops other than cereals. Cotton; tobacco; legumes; hay; forage and pastures; silage production; sweet potato; peanuts, etc., are taken up in the order given. All of the first term is devoted to cotton and tobacco. Rotation, the development and conservation of fertility in connection with the use of these crops on the farm or their sale. Application of the principles of breeding to cotton, tobacco, corn and other crops.

Each student is required to present a monograph on some crop or some subject of close relationship to important crops of the State. Three periods through the year. Required of Seniors in the Agronomy Division. The second term is required of Seniors in the Animal Husbandry Division, in the Veterinary Division, and in the Normal Division. Professor NEWMAN.

6. Agronomy.—This course is for students specializing in Agronomy. Each student is assigned a subject or group of related subjects for study, and the result of his investigations is reported in bulletin form. Experimental methods and results of experiments are studied. Experiments are planned and the results worked up and conclusions drawn. Three periods, second term. Required of Seniors in Agronomy Division. Professor NEWMAN and Mr. HODSON.

7. Farm Management.—Types of farming and their relation to soil, climate, labor, transportation, population, capital and land values; operating expenses; systems of land tenure, farm organization; size of farms; location and arrangement of buildings; roadways, fences, water supply, orchard, garden, etc.; factors governing nature and amount of equipment; financial accounts; farm records; diversification; rotation from a business point of view; cropping systems; relationship of animal and plant production; maintenance of fertility; standard of living; schools; churches. Three periods, first term. Required of Seniors in Agronomy, Animal Husbandry, Normal and Veterinary Divisions. Professor NEWMAN.

8. Agronomy.—Advanced work in the following groups: (a) cereals; (b) cotton and tobacco; (c) forage crops and grasses; (d) legumes, cover crops, and rotations; (e) miscellaneous field crops; (f) crop breeding; (g) experiments; (h) farm management. One hour for one year required in each group. Two or more groups must be taken. Prerequisite, Agronomy 6. Professor NEWMAN.

SOILS.

Equipment.

The Soils Department has a large new laboratory in Patterson Hall furnished with solid oak desks and lockers so arranged as to accommodate a large number of students in general soils work and to allow individual locker space with plenty of working room for each student. These desks and lockers, with other tables and soil chests, were designed and made to order for this laboratory, and hence are arranged to give the greatest convenience and the most complete use of the room that is possible.

The apparatus is all of the latest and most approved models, giving greater utility and accuracy, combined with simplicity, than would be possible with any other.

In addition to the laboratory facilities, the department makes use of the College farm for its practical work in drainage, terracing, fertilization, cultivation, and study of soil types.

Subjects of Instruction.

10. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the United States, and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of all Juniors. Veterinary Division, first term only. Prerequisite, Chemistry 90 and requisite, Soils 10. Professor SHERWIN and Mr. JOSLYN.

11. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability, and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers as shown by their productive capacity. Two periods, second term. Required of Seniors. Prerequisite, Soils 10. Professor SHERWIN.

12. Farm Drainage.—This includes both principles and practice of drainage. The student becomes familiar with the use of various drainage instruments and implements, as the course involves considerable field work in laying out systems of under-drains. Different methods of leveling and determining grade are discussed and practiced.

Determination of size of tile needed, depth and method of laying, influence of depth of tile and distance apart of drains on withdrawal of water from the soil, and all of these as influenced by texture and character of the soil, are considered. Drainage by means of open ditches and surface drainage by means of terraces will also be given attention. Two periods a week, first term. Required of Seniors in Agronomy, Normal and Horticulture. Prerequisite, Soils 10. Professor SHERWIN and Mr. JOSLYN.

13. Advanced Soils.—In this course the student will be guided in the study of any line of Soils work he may choose, either along practical or scientific lines. Laboratory and field work will be given. Considerable reference will be made to Experiment Station literature with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. Three periods a week throughout the year. Elective for Seniors. Prerequisite, Soils 10. Professor SHERWIN.

14. Farm Manures.—A study of the composition, production, value and utilization of farm manures. Two periods a week, second term. Prerequisite, Soils 10. Professor SHERWIN.

HORTICULTURE.

Equipment.

The Department of Horticulture is provided with facilities for instruction which are singularly efficient in many respects, and additions which are now being made, together with others which are expected in the near future, will equip it with unexcelled means of teaching horticulture in all its branches. At present the offices and class rooms are located in Patterson Hall. New laboratory space has been provided by the erection of a forty-one foot section of a brick and slate structure known as the Service Building, and one attached iron-frame greenhouse covering a space thirty by one hundred feet. The Service Building, which is twenty-five feet wide, will eventually be lengthened to seventy feet, and to it will be attached another greenhouse of the same size as the one just built. The Department is also charged with the management of about twenty-five acres of land devoted to fruits and vegetables of all kinds, and of the College campus, covering about fifty-five acres, which is in the process of development in accordance with artistic and scientific principles of landscape design.

The laboratory space is constantly in use as a workroom for classes in all subjects, and is well supplied with tools and necessary pieces of apparatus. The greenhouse, hotbeds, and cold-frames provide room and facilities not only for growing early vegetables and flowering plants, but also for the forcing of both vegetables and flowers under glass. Here the student is allotted a definite space and is required to put into practice the knowledge gained in the class room by growing the crops there treated. Practice work is an essential adjunct of every course. Student work under competent supervision is employed in all parts of the grounds.

The Horticultural Grounds, which contain about twenty-five

acres, provide exceptional facilities for additional training in vegetable gardening, and for instruction in pomology and plant breeding. Here are located the "Student" vegetable gardens, which the students are required to plan, plant, and manage. Here, also, are to be found an orchard each of apples, pears, pecans and figs; a vineyard each of "bunch" and muscadine grapes; and smaller plantings of plums, persimmons, quinces, cherries, raspberries, blackberries, dewberries, strawberries. The remaining and intermediate spaces are used for growing vegetables on a larger scale; for the maintenance of a nursery for fruit and ornamental plants; and for ornamental planting about the residence situated near the middle of the grounds. The grounds as a whole are designed to serve as a model of a small fruit farm economically and tastefully arranged.

Subjects of Instruction.

20. Plant Propagation.—A course in the multiplication of plants. Seedage, separation and division, cuttage, layerage, and graftage are considered in turn. The most commonly used methods of propagating vegetables, fruit and ornamental plants are emphasized. Three periods, first term; recitation, two hours; practice, two hours per week. Required of Sophomores. Mr. HAYDEN.

21. Vegetable Gardening.—A course dealing with the principles of vegetable growing and the methods employed in the home, truck and market gardening areas. Special attention is given to the home garden, and the trucking industry in North Carolina. Consideration is given to sites, soils, manures and fertilizers, seed sowing, transplanting, and the culture, harvesting, storing and marketing of all important vegetables. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Sophomores. Mr. HAYDEN.

22. Practical Pomology.—A general course in fruit growing. Among the subjects considered are the choice of locations, the selection of sites and soils; the choice of varieties; the preparation of the land; the planning, planting, fertilization and management of orchards; and the harvesting, storing and marketing of fruits. Practice consists in the inspection and examination of sites and soils, the making of orchard plans; laying out orchards; handling and planting trees; and the exercise of modern methods of grading, packing, and marketing fruits. Three periods, first term; recitation, two hours, practice two hours per week. Required of Juniors in Horticultural Division and of Seniors in Agronomy Division. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

23. Greenhouse Construction.—A course of study of the different forms of greenhouses and glass structures used for growing plants, and their adaptation to different purposes. Practice work consists in the drawing of plans, estimating cost of building and heating. Three periods, first term; recitation, one hour; practice, four hours per week. Required of Juniors in Horticultural Division. Prerequisite, Vegetable Gardening 21. Professor PILLSBURY.

24. Pruning and Orchard Protection.—A course in the training of fruit plants and their protection from insect pests and fungous diseases. Treatment of special diseases and methods of protection from frost are also considered. A continuation of Practical Pomology. Three periods. second term; recitation two hours, practice two hours per week. Required of Juniors in Horticultural division. Prerequisite, Practical Pomology 22. Mr. HAYDEN.

25. Plant Breeding.—A course in the study of the principles of plant breeding, and practice of the most approved methods of pollination, crossing and selection for the origination and improvement of varieties of plants. Mendelism and biometrical measurements constitute an important part of the course. Three periods, second term; recitation two hours, practice two hours per week. Required of Juniors in Horticultural and Seniors in Agronomy and Normal divisions. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

26. Greenhouse Management.—A course which treats of the principles and practice of growing plants under glass. It includes the forcing of both vegetable and flowering plants. A given area is assigned to each student and he is required to plan, plant, and manage it to a successful conclusion. Three periods, first term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Vegetable Gardening 21. Mr. HAYDEN.

27. Systematic Pomology.—A course which combines both a study of the origin and evolution of our native fruits, and practice in description, identification, classification, and judging of varieties. Three periods, first term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural division. Prerequisites, Practical Pomology 22 and Plant Breeding 25. Professor PILLSBURY.

28. Landscape Gardening.—A course in the study of the principles of the arts of design, and their application to the design of landscapes. The principal styles of composition are considered and compared as to history, development and adaptation. Practice

consists of a study of landscape materials, in mapping, designing plans, and making specifications, and in the execution of important parts of the practical work of improving grounds. Three periods, second term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

29. Horticulture, Elective.—A course designed to give the student an opportunity to elect and pursue the study of some special line of horticultural investigation. Three periods, second term; hours to be arranged. Open to Seniors in Horticulture only. Professor PILLSBURY.

BOTANY.

(Botany, Plant Pathology and Bacteriology.)

Equipment.

Three commodious laboratories and a large recitation and lecture room are devoted to Botany, Bacteriology, and Plant Pathology. A research-room is provided for the use of advanced students. There are also offices for the professor and instructors, and a store-room, a dark room, and an incubator-room. All rooms are supplied with electricity, gas, and hot and cold water, and the bacteriological laboratory is, in addition, provided with steam under 80 pounds pressure for purposes of sterilizing. The laboratories are supplied with wall-cases, shelves, herbarium cases, specimen boxes, sterilizers, incubators, microscopes, microtomes, a liberal supply of glassware, and such small utensils as are needed in the prosecution of the work. The incubator-room is fire-proof, and is provided with a Weisnegg regulator capable of keeping the temperature of the room practically invariable. The excellent herbarium has been mounted, and is now accessible for class use. There is an extensive collection of seeds, both of weeds and cultivated plants, and the most important plant diseases are represented by herbarium and alcoholic specimens.

Subjects of Instruction.

30. Elementary Botany.—Recitation, laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed plants. The student's knowledge is made his own through laboratory work and simple independent investigations. Three periods. Required of

Freshmen. Prerequisite for other courses in the Department. Professor FULTON, Mr. YOUNG.

31. Plant Physiology.—Recitation, lecture, and laboratory study of such fundamental physiological processes of plants as are of particular interest to students of agriculture. Absorption, nutrition, growth, and reproduction are considered. Three periods, first term. Required of Sophomores. Professor FULTON, Mr. COOPER.

32. Plant Diseases (Advanced).—A study of representative crop diseases. This course is intended to prepare the student for practical control or further study of plant diseases. Two periods. Required of Seniors in Horticultural, Agronomy and Normal Divisions. Professor FULTON, Mr. YOUNG.

33. Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation and disinfection, and to the relation of bacteria to disease in plants and animals and to agricultural practice. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Three periods, second term. Required of Juniors. Mr. COOPER.

34. Bacteriology (Advanced).—A course designed to extend knowledge in special fields and to perfect the technique in bacteriology for those who desire to do original work in this subject. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, or in bacteriology of manure, water, soil, or air. The course is flexible, and will be made to fit the requirements of those students electing it. Three periods. Elective for Seniors. Credit for either term or both terms. Prerequisite, Botany 33. Professor FULTON, Mr. COOPER.

35. Dairy Bacteriology.—A lecture, text-book and laboratory course covering the more important facts in the relation of bacteria to dairying. The laboratory course consists in demonstrating and supplementing the lecture course. Three periods, first term. Required of Seniors in Animal Husbandry and Veterinary Divisions. Prerequisite, Botany 33. Professor FULTON and Mr. COOPER.

ANIMAL HUSBANDRY.

Equipment.

The Animal Husbandry Department now occupies the Animal Husbandry Building, which was completed during the summer of 1912. This building was constructed at a cost of twenty-five thousand dollars, and is up-to-date in every way. The department has

offices, classrooms, record-room, and stock-judging room, furnishing excellent facilities for students in Animal Husbandry.

The live-stock equipment has been added to materially during the past year. A fine registered Percheron stallion and several high-grade mares are kept for horse work. These are all used for farm work and breeding purposes as well as for class work. The dairy herd now consists of seventy-five head, of which about forty are cows in milk. Three leading breeds are represented, consisting of twelve high-grade Holstein cows and a registered bull, six pure-bred Ayrshire cows and a bull, twelve pure-bred Jerseys and a bull, the remainder being grade Jerseys and Guernseys. This gives splendid material for class work in the study of dairy breeds.

A herd of pure-bred swine has been established, consisting of the following breeds: Berkshire, Duroc Jersey, and Chester White. Good individuals have been selected and enough animals will be maintained to give the student a splendid opportunity for swine work.

The product of the dairy is sold as milk, butter, and cream to the College Dining Hall and to city customers.

Subjects of Instruction.

40. Breeds of Live Stock.—A study of the origin, history, characteristics, adaptability, and popularity of the breeds of live stock. Every opportunity will be taken advantage of to teach the student the merits of the various breeds, and, when possible, classes of the breeds will be judged. Three periods, second term. Required of Freshmen. Professor McNUTT and Mr. SALISBURY.

41. Live-Stock Judging.—A study of the score-card and its use. A comparison of the score-cards for the various breeds, and practical scoring. Methods and rules in judging the various classes of live stock. In practical judging the student will be required to give oral or written reasons to sustain his placing of the animals. Three periods, first term. Required of Juniors, except Horticulture. Professor McNUTT.

42. Stock Feeding.—A study of the composition of feeds and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles so that he can compound suitable rations for the different classes of live stock. Especial emphasis will be laid upon practical problems in feeding. Three periods, second term, except in Horticulture. Required of Juniors. Text-book, Henry's *Feeds and Feeding*. Professor McNUTT.

43. Animal Breeding.—A study of the fundamental laws and principles underlying the science of breeding, and the application of these laws in breeding the different species of domestic animals. Three periods, second term, beginning about March 1. Required of Juniors. Professor McNUTT.

44. Live-stock Management.—A study of the feeding, breeding, care and management of the various classes of farm animals, including the management of breeding stock as well as work stock. Three lectures a week throughout the year. Required of Animal Husbandry Seniors. Professor McNUTT.

45. Live-stock Markets.—Lectures covering the market classes and grades of horses, cattle, sheep and swine will be given so as to make it possible for the students to become familiar with the markets and their demands. Three periods throughout the Senior year. Required of Animal Husbandry Seniors. Professor McNUTT.

46. Advanced Course in Stock Judging.—Lectures covering the subjects will be given and the students will be required to judge as many classes of stock as possible. Two periods. Elective for Animal Husbandry Seniors. First term. Professor McNUTT and Mr. SALISBURY.

47. Market Classes and Grades of Meat.—A study of the market classes and grades of beef, pork and mutton; also slaughtering, marketing, and meat cutting. The relative value of the cuts from the various parts of the carcass will be given due consideration. Two periods, second term. Elective for Seniors. Professor McNUTT.

DAIRYING.

Equipment.

The dairy laboratory occupies about four thousand square feet of floor space in the basement of Patterson Hall, besides the locker-rooms, the toilet, and bath rooms on the same floor.

The main dairy laboratory is thirty-six by fifty-seven feet, and is fitted throughout with modern equipment suited to giving up-to-date instruction in farm dairying, retailing milk, and creamery practice. The equipment for the farm dairying consists, in the main, of De Laval, Sharples, Empire, National, United States, and Simplex hand separators; swing and barrel hand churns of different sizes; cream vats, hand and power butter-workers, aerators and coolers, milk-testers, and other articles useful in doing farm dairy work.

Milk-testing, which plays such an important part in all phases of dairy work, receives a great deal of attention. Several sizes of

hand machines and two twenty-four bottle power testers are used in this work, together with all equipment necessary for testing milk, cream, butter, cheese, skim-milk, and whey. The lactometer is also used to determine milk solids and specific gravity.

The equipment for giving instruction in commercial dairying consists of milk pump, receiving vat, tempering vat, turbine separator, continuous pasteurizer, combined churn and butter-worker, bottling outfit, and bottle-washing and sterilizing outfit.

Subjects of Instruction.

48. Dairying.—Text-book and lecture course covering the fundamental principles of modern dairying. The laboratory work consists of practice in the use of modern dairy equipment. Each student is required to become familiar with the construction, care, and operation of the leading makes of cream separators. Proficiency is required of the student in testing and standardizing milk and cream, and in cream-ripening, churning, working, packing, and scoring butter. Three periods, first term. Required of Sophomores. Mr. SALISBURY.

49. Advanced Dairying.—A study of the practical problems in dairy management. Dairy barn construction and arrangement of buildings and lots. The different phases of dairying will be studied from an economic standpoint, together with the production of sanitary and certified milk. Dairy inspection with practice in scoring dairies. Milk inspection for adulterants and preservatives, and butter scoring. Three periods, second term. Required of Seniors in Animal Husbandry. Professor MCNUTT and Mr. SALISBURY.

POULTRY HUSBANDRY.

Equipment.

The Poultry Science Department is provided with a plant containing a number of breeding pens for a study of types, with necessary yards. The houses are of types well suited to poultry keeping in North Carolina. They contain an incubator room with three different makes of incubators; and a brooder house, which can be heated by hot water when necessary. Indoor brooders of several different kinds are used, including fireless and heated types, an egg-storage compartment and grain-sprouting room, feed and mixing room, feed cutters, grinders, and other necessary equipment. The equipment also includes:

A teaching laboratory in which classes in egg candling, market egg grading, fattening tests, dressing and scoring, caponizing, insect

powder preparation, dissection and autopsy and poultry judging are held.

A demonstration laboratory containing models of plants, samples of feeds, samples and grades of feathers, poultry feeders, water fountains, brooders, incubators, egg crates and containers, coops and crates, trap nests, models of buildings, building materials and innumerable other poultry appliances as well as specimens of disease tissue and parasites.

The research laboratories in this course furnish excellent material for the class room, and students profit by all the work done in the Department.

Subjects of Instruction.

50. This course includes a discussion of the poultry industry, market conditions and demands, classes, breeds and types of poultry, and breeding problems, including the selection of laying types, meat types, and utility types of birds. Among the subjects discussed are the management of poultry on the farm, the care and marketing of eggs, artificial and natural incubation, and the proper construction of suitable poultry houses for the farm. Practical work will be given in operating the bone-grinder, feed-mixer and feed-cutter, and in sprouting grain for the purpose of furnishing succulent feed. Equipment in laboratory and plant gives the student an opportunity to familiarize himself with the practical side of the work. This course is for all students taking poultry work for the first time. Three periods, Junior year, first term. Doctor KAUPP.

51. This course takes up a comprehensive study of all feed stuffs used in poultry feeding, including the balancing of rations and feeding for egg production, growth and development, fattening, breeding stock, cocks, cockerels, pullets, ducks, geese, hens, capons, turkeys, guineas and pigeons. It goes thoroughly into poultry hygiene, discussing the care of birds, nests, roosts, dropping boards, feed and water troughs, houses and yards, as well as a study of the construction and use of poultry appliances. A demonstration laboratory and work on the egg plant aid in giving the student practical work. For Agricultural students electing major work in Poultry in place of Veterinary Medicine. Junior year, second term. Three periods a week. Doctor KAUPP.

52. This is a course in laboratory work, consisting of actual experience in fattening, dressing, grading, scoring, trussing and shipping poultry, including a study of the shipping problems in both dressed and live poultry. This course also includes a thorough study of commercial poultry plant construction, management, and

problems; and a study of the methods of handling eggs from the producer to the consumer, collecting, packing, shipping, storing, handling, shipping eggs for hatching, by parcel post, by express, and in carload lots.

For Agricultural students electing major work in Poultry, in place of Animal Husbandry 45. Senior year, three periods a week, first term. Doctor KAUPP.

53. This is a detailed study of the origin of each breed and how to mate for breeding according to the American Standard of Perfection. A study is made in the class room of colored plates and of mounted cards showing feather patterns from each breed illustrating typical feathers, and there is laboratory study of each class of bird, specimens being furnished from the birds kept on the poultry plant for the purpose. Each student prepares a bird for the show room and gains experience in judging. For Four-year Agricultural students electing major work in Poultry, taking place of Animal Husbandry 45 in second term, Senior. Three periods a week. Doctor KAUPP.

54. A detailed study of anatomy, histology and physiology of the fowl. The student makes a complete dissection, including muscles, tendons, blood vessels, nerves and visceral organs. Both gross and microscopic study is made of the tissues and organs.

The course includes a complete study of the cause, symptoms, post mortem findings and treatment, as well as pathologic and bacteriologic study of all diseases of fowl, including parasitism. Required of Four-year Agricultural students electing major work in Poultry. Three periods a week, first term, Senior year. Doctor KAUPP.

55. A laboratory course in which each student operates an incubator and brooder. When the chicks he is rearing reach the squab broiler size, he dresses those selected, according to market demands, others at fryer size and at roaster age. At the proper age cockerels are selected and caponized, the capons being raised to market size, dressed and shipped. Required of Agricultural students electing major work in Poultry. Three periods a week, second term, Senior year. Doctor KAUPP.

VETERINARY SCIENCE.

Equipment.

For instruction in the above subjects, the department is provided with offices, lecture-rooms, laboratories, pharmacy-room (for drugs and surgical instruments), and dissecting-room.

The offices contain the usual office fixtures, besides a library of most of the standard works on veterinary medicine in English.

For use in classroom and laboratory, the department is supplied with mounted skeletons of man and of the horse and cow; also numerous specimens of tumors, tuberculous organs, bony lesions of spavins, splints, ring bones, and side bones. Besides the collection illustrating diseased tissues, the department has a large collection of parasites which infest domestic animals.

The laboratories are provided with wall cases, work tables and desks, washing sinks, hot and cold water, gas burners, and electric lights. The laboratory for special work has microtome (for cutting sections of tissue for study with microscope), glass slides, stains, and the various materials required for making temporary and permanent mounts of healthy and diseased tissues. The larger laboratory is supplied with the necessary equipment for conducting exercises in physiology.

In the pharmacy-room are samples of a large number of drugs used in comparative medicine, and a more or less complete set of surgical instruments, including an operating table for small animals, and casting harness and slings for larger animals.

Subjects of Instruction.

60. Animal Physiology.—Mounted skeletons of man, of the horse, and of the cow will be used in a brief study of elementary anatomy of man and domestic animals. This will be followed by a comparative study of some of the functions of the various systems and organs of the body, such as the skeleton, muscles, nerves, organs of special sense, digestion, circulation, respiration, skin, etc. The subject will be covered by lectures, recitations, demonstrations and laboratory exercises. Three periods, second term. Required of Sophomores. Doctor SMITH.

61. (a) Veterinary Anatomy and Physiology.—Text-books, supplemented by lectures and illustrated by charts, models, skeletons, sketches and dissections will be used. Anatomy and physiology are fundamentals in any system of medicine as well as essential to a comprehensive study of live stock. Special attention will be given to the systems and organs of locomotion, digestion, respiration and reproduction. Three periods, first term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS.

61. (b) Veterinary Hygiene, Sanitation and Practice.—Preventive medicine is the goal of the human physician, the veterinarian and the sanitarian. Therefore to sanitarians a rather comprehensive knowledge of hygiene and sanitation is necessary. Considerable time will be devoted to a study of the causes of disease and the

means of avoiding them through hygienic and sanitary measures. Some few diseases will be discussed more or less in detail, and a weekly clinic will be held at the hospital. Three periods, second term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS and Doctor KOONCE.

62. (a) Veterinary Science—Advanced Physiology.—Appreciating the value of many of the interesting phenomena in physiology, opportunity is given to consider those especially applicable for the animal husbandman and the teacher. Three periods, first term. Elective for Seniors in Animal Husbandry and Normal Divisions. Professor ROBERTS and Doctor SMITH.

62. (b) Veterinary Science—Infectious Diseases.— This course, while correlating with the Junior work and Senior physiology, will not require these courses as prerequisites. Attention will be given to those infectious diseases that are common in the South and especially those that occur both in man and animals. Their cause, symptoms and control will be discussed. Three periods, second term. Elective for Seniors in Animal Husbandry and Normal Divisions. Professor ROBERTS and Doctor SMITH.

For agricultural students intending to pursue a veterinary course, opportunity will be given during their Junior and Senior years to elect subjects required in the Freshman and Sophomore years of such a course.

63. Histology.—A microscopical study of the tissues of the body, treating of the cell as the unit of structure, and of its functions; also of tissues, their classification, and their relation to the structure of organs. From dissections, clinics, and proximity to slaughter-house, abundance of histological material of various animals is received. Three periods, first term; two periods, second term. Required of Juniors in Veterinary Division. Doctor SMITH.

64. Veterinary Anatomy.—This subject will deal with the study of the skeleton, including bones and joints, and of muscles and digestive organs. A complete dissection of the muscles of the horse will be made. Three periods. Required of Juniors in the Veterinary Division. Doctor SMITH.

65. Materia Medica.—A study of the drugs used in comparative medicine will treat of their classification, composition, physiological actions, and doses. Three periods, second term. Required of Juniors in Veterinary Division. Professor ROBERTS.

67. Veterinary Anatomy.—A continuation of course 64. A study of the digestive, respiratory, circulatory, and nervous systems will be made, with complete dissection of each in the horse. Three periods. Required of Seniors in Veterinary Division. Professor ROBERTS.

68. Veterinary Physiology.—A comparative study of the bodily functions of the various domestic animals is made, with special reference to digestion, respiration, circulation, and secretion. Three periods. Required of Seniors in Veterinary Division. Doctor SMITH.

69. Pathology and Bacteriology.—A large number of specimens of diseased tissue already present in the museum and opportunity for collecting others from clinics and abattoirs insure plenty of material to demonstrate the various macroscopical and microscopical changes in organs and tissues due to disease. Especial attention is paid to the isolation and study of the pathogenic bacteria from the various organs of diseased animals. Two periods. Required of Seniors in Veterinary Division. Doctor SMITH.

70. Materia Medica and Pharmacy.—Course 65, as described above, will be continued, including prescription writing and laboratory work in the preparation, compounding and dispensing of medicines. Three periods, first term. Required of Seniors in Veterinary Division. Professor ROBERTS.

71. Clinical Diagnosis.—This subject is taught for the purpose of studying the methods for the examination of animals to detect and diagnose the various diseases affecting them. Three periods, second term. Required of Seniors in Veterinary Division. Professor ROBERTS and Doctor KOONCE.

ZOOLOGY AND ENTOMOLOGY.

Equipment.

The Department of Zoology and Entomology occupies the second floor of the new Animal Husbandry Building. This provides ample space for offices, laboratories, classroom, museum, library and photographic room.

The students' laboratory is a large, exceptionally well lighted room which is provided with the usual accessories of a zoological laboratory. The laboratory tables are furnished with "Kewaunee" and "Albarene" tops, and provide ample working space and individual lockers for each student.

The classroom is furnished with a Leitz projection apparatus and with a large series of charts illustrating the principal classes of animals.

The museum contains a rapidly growing synoptic collection illustrating the principal groups of animals found in North Carolina.

The library contains some of the more important books on zoological and entomological subjects and receives the current periodicals dealing with these subjects.

Subjects of Instruction.

80. Elementary Zoology.—An elementary study of all forms of animals, with special reference to the more important economic groups, is given by text-book, library, laboratory and field work, with supplementary lectures. This course is designed to give the student a general knowledge of the animal kingdom, and to lay the foundation for the special work which follows. Three periods, second term. Required of Sophomores. Prerequisite for all other courses in the Department. Professor METCALF, Mr. FEILD, Mr. SPENCER.

81. Advanced Zoology.—This course is designed to give the student a working knowledge of the groups of animals which have furnished the principal domestic animals; with something of the history, anatomy and development of the vertebrates, together with a study of the parasites of domestic animals. Three periods, first term. Required of Juniors in Animal Husbandry. Professor METCALF, Mr. FEILD, Mr. SPENCER.

82. Vertebrate Zoology.—This course will cover the comparative anatomy and embryology of the principal groups of vertebrates, together with a discussion of the origin, development and evolution of the vertebrates. Three periods, second term. Required of Seniors in Veterinary Division. Professor METCALF.

83. Zoology—Elective.—A course designed especially for students who wish to review the fundamental principles of zoology, either as a basis for teaching or for investigational work. Two or three periods, first and second terms. Elective in Normal Division. Professor METCALF.

84. Elementary Entomology.—The elements of insect anatomy, classification and development as a foundation for economic entomology is covered by text-book, lectures and laboratory work. Three periods, first term. Required of Juniors in Horticultural and Normal Divisions. Professor METCALF, Mr. FEILD, Mr. SPENCER.

85. Elementary Economic Entomology.—Injurious insects of field and truck crops, garden, orchard, barn and household are studied from the standpoint of their life histories and control. Text-book, laboratory and field work. Two periods, first and second terms. Required of Juniors in Agronomy. Professor METCALF, Mr. SPENCER.

86. Economic Entomology.—The insect enemies of domestic animals, grains and forage crops are studied from the standpoint of structure, development and control. Lecture, laboratory and field work. Three periods, second term. Required of Juniors in Animal Husbandry Division. Professor METCALF, Mr. FEILD.

87. Horticultural Entomology.—Systematic study of the injurious insects of orchards, shade and ornamental plants, together with a study of the insect enemies of the principal truck and garden crops from the standpoint of their life histories and control. Two periods, first and second terms. Required of Seniors in Horticultural and Normal Divisions. Professor METCALF.

CHEMISTRY.*

90. Inorganic Chemistry.—Hessler & Smith's *Essentials of Chemistry*. The common elements and their principal compounds, together with some of the fundamental principles of the science, are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. Cox.

91. Inorganic Chemistry.—Laboratory work. Hessler & Smith's *Laboratory Exercises*. Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the class room are performed by the student. One period. Required of Freshmen. Doctor FREDERICK and Doctor DOBBINS.

92. Analytical Chemistry.—W. A. Noyes' *Qualitative Analysis*. A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys and minerals. Three periods. Required of Sophomores. Doctor MILLER.

93. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis*. Gravimetric and volumetric analysis. Special attention is given to the determination of elements in fertilizers, feed stuffs, and other substances of special interest to agricultural students. Three periods, one term. Required of Juniors in Agronomy, Horticulture, and Animal Husbandry. Elective for Seniors in Veterinary and Normal courses. Doctor WILLIAMS.

94. Agricultural Chemistry.—Hart and Tottingham's *Agricultural Chemistry*. A study of plants and animals, their nutrition and products from a chemical standpoint. Three periods, one term. Required of Juniors in Agronomy, Horticulture, and Animal Husbandry. Elective for Seniors in Veterinary and Normal courses. Professor WITHERS.

95. Organic Chemistry.—Remsen's *Organic Chemistry*. A study of the fundamental principles of organic chemistry and of the most important organic compounds. Two periods. Required of Juniors in the Normal and Veterinary group, and of Seniors in Agronomy.

*For further information see Course in Chemistry.

Elective for Seniors in the Horticultural and Animal Husbandry groups. Doctor DOBBINS.

GEOLOGY.

97. Geology.—Introductory course in Geology. A brief course treating of soil, the action of the various agencies on the land, building up of land by water, and the study of the principal constituents of the soil. Two hours, first term. Required of Sophomores. Doctor WILLIAMS and Mr. COX.

PHYSICS.

100. Elementary Physics.—In this course special stress is laid upon the subjects of mechanics, liquids, gases, and heat. It includes the study of fundamental units, British and metric standard measures, definitions of force, work and power, laws of motions, principles of machines, mechanics of fluids and gases, heat, and a brief introduction to the study of sound and light. For description of the Physical equipment, see page 122. Three periods. Required of Sophomores. Associate Professor HECK.

MATHEMATICS.

110. Algebra.—Wells' *New Higher Algebra.* Begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations and continued fractions. At the beginning of the term a review is usually given on involution, evolution, theory of exponents, and radicals. Five periods, first term; five periods, second term to February 15. Required of Freshmen. Prerequisites for first term, entrance requirements; for second term, the work of the first term, or, in case of failure, a term standing of 60 per cent or more, and a final examination grade of at least 40 per cent on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. RICKARD.

111. Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry.* A complete course in plane geometry, including numerous original exercises. Five periods, February 15 to end of second term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. RICKARD.

ENGLISH.

120. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of

subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Mr. PRATT, Mr. WEBBER.

121. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. WEBBER.

122. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first term, and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

123. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

124. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods, two terms. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

125. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Three periods, first term. Open to Seniors. Professor HARRISON.

126. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Three periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

130. Introductory Economics.—This course is designed to train the student in the elementary principles of Economics. A brief

survey will be given of the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts, and government regulation of business. Three periods, first term. Required of all Seniors in agriculture, except veterinary and normal students. Required of normal students in Junior year. Professor CAMP.

131. Agricultural Economics.—A study is made of the organization of agriculture in Europe and the United States. The general aim of the course is to train those who are planning to become agricultural experts or farmers, to an understanding of the business side of agriculture. Three periods, second term. Required of all students of agriculture in the Senior year, except veterinary and normal students. Normal students must take either course 131 or 132 in the Junior year. Professor CAMP.

132. Banking and Farm Credit.—The purpose of this course is to give an understanding of the necessity for credit on the farm and to show how the need is met by the Mutual Credit Societies of Europe, by the banks of the United States, and by other loan agencies. Three periods, second term. Elective for Seniors. Professor CAMP.

133. Railroad Transportation.—A consideration of the different systems of railroad rates as affecting the shipment and the method of sale of farm products. Three periods, first term. Elective for Seniors. Professor CAMP.

134. Trusts, Pools and Combinations.—A study of the conditions which have led to the development of large business combinations; a description of the methods of organization of typical industries; an analysis of the advantages and disadvantages to be derived from large scale business organization; and a consideration of the different policies of government regulation. Three periods, second term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The purpose of the work in this Department is to enable the student to read and become acquainted with German, French and Spanish scientific literature. Grammar is taught only secondarily and as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years' work in German is required of students taking the Chemical course, and it is recommended that students in this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

140. Beginner's German.—Grammar, composition and translation. Bacon's *German Grammar.* Reader to be selected. Elective for Juniors. Both terms, three hours. Assistant Professor HINKLE.

141. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical German the second term. Gore's *German Science Reader* and Wallentin's *Grundzüge der Naturlehre.* Elective for Seniors. Both terms, three hours. Assistant Professor HINKLE.

143. Beginner's French.—Grammar, composition and translation the first term. Introductory scientific French the second term. Giese's *Graded French Method.* Bowen's *First Scientific French Reader.* Junior elective. Both terms, three hours. Assistant Professor HINKLE.

144. Beginner's Spanish.—Grammar, composition and translation. Hills and Ford's *Spanish Grammar.* Hills' *Spanish Tales for Beginners.* Senior elective. Both terms, three hours. Assistant Professor HINKLE.

SHOP AND DRAWING.*

150. Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. Required of Freshmen. Two periods, second term. Mr. WHEELER.

152. Drawing.—Elementary drawing, elementary projection, freehand sketching and lettering. Geometrical problems. Freehand drawing. Two periods, first term. Required of Freshmen. Mr. RICHARDSON.

MILITARY SCIENCE.

153. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

154. Tactics.—Theoretical instruction in Infantry Drill Regulations, Field-service Regulations, Map Reading, and Small Arms Firing Manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

*For description of the equipment, see page 106.

SHORT COURSES IN AGRICULTURE.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following short courses are offered. None of these courses, of course, lead to graduation, and they are not, in any sense, intended as preparatory courses to the regular four-year classes. They are designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen spheres of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take these shorter courses will be carefully drilled in the handicraft and mechanism of their art, and in the application of elementary science to the farm, dairy, garden, and orchard.

1 (c). TWO-YEAR COURSE IN AGRICULTURE.

This course offers, in addition to the purely agricultural branches, introductory and cultural subjects, and thus enables the student to secure not only all the technical and practical work of the One-year Course, but Physiography, Physics, English, and Mathematics, in addition, and all the better prepares young men to become farmers, farm managers, and teachers of agriculture and allied branches in the public schools. A description of the equipment will be found on page 49 and following pages.

TWO-YEAR COURSE.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	2	2
Physiology and Hygiene	2	0
Physiography	0	2
Plant Culture	0	2
Physics	2	2
Carpentry	2	0
Mathematics	5	5
English	5	5
Drill	3	3
Totals	21	21

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Soils and Fertilizers	0	3
Animal Husbandry and Dairying	3	6
Veterinary Science	3	0
Poultry, 50	3	0
Horticulture	3	3
Botany and Plant Diseases	3	0
English	3	3
Entomology	0	3
Drill	3	3
Totals	24	24

Subjects of Instruction.

Agriculture (Two-year Course); First Year.—A broad elementary introduction to the study of Agriculture, including the more important field crops of the State. The history, classification, adaptation, culture, harvesting, marketing, and uses of corn and small grain. Two periods. Mr. Hodson.

Second Year.—Cotton, legumes, hay and forage plants, seeds and seed selection; farm equipment, farm management. Three periods. Professor Newman, Mr. Hodson.

Physiography, First Year.—A study of the natural agencies affecting the earth's surface, soil, water, etc., and temperature, and their effect upon plants and animals. Two periods, second term. Mr. Joslyn.

Soils; Second Year.—This will include a study of the soils of the State; their formation and classification into agricultural types; their physical properties; relation to moisture and air supply; best methods of conserving and regulating the soil moisture; principles and practice of drainage. The effect of different soil and crop treatments, such as rotation, cultivation, and fertilization, will be studied. Considerable attention will be given to humus, farm manures, and green manures, and to the use and home-mixing of fertilizers, with special reference to the time and methods of using. Three periods, second term. Mr. Joslyn.

Principles of Plant Culture; First Year.—A course in which the functions of various parts of plants; the activities engendered by heat, cold, moisture and light; and the effect of soil and climate upon the growth of plants are considered. The propagation, planting and training of plants are also included. Practice work consists in laboratory and field exercises demonstrating the facts studied. Two periods, second term; recitations, one hour; practice, two hours per week. Mr. HAYDEN.

Fruit Culture; Second Year.—A course in practical fruit growing as applied to the different sections of the State. The principal fruits are treated as to location, sites, soils, choice of varieties, best method of propagation, preparation of the land, laying out the orchard, its planting and training, spraying, fertilization, management, and the harvesting, storing and marketing of the fruit. Three periods, first term. Mr. HAYDEN.

Vegetable Gardening; Second Year.—This course treats of the growing of vegetables for home use, the culture of the principal "truck" crops; and the forcing of vegetables under glass. Practice includes the work of seed sowing, transplanting, and culture of the leading vegetable crops, both under glass and in the field. Each student is required to plan, plant and manage a definite plot assigned to him for the purpose of applying the knowledge gained in the classroom. Three periods, second term. Mr. HAYDEN.

Botany and Plant Diseases.—The structure of seed plants is studied and the general principles of nutrition, growth, and reproduction, are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking field, orchard, and garden crops; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Second year. Three periods, first term. Professor FULTON.

Animal Husbandry.—Study of breeds, judging and management of live stock, animal breeding, and stock feeding. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Second year. Three periods, first and second terms. Professor MCNUTT and Mr. SALISBURY.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term, second year. Mr. SALISBURY.

Poultry Husbandry.—This course includes a discussion of the poultry industry, market conditions and demands, classes, breeds and types of poultry, and breeding problems, including the selection of laying types, meat types, and utility types of birds. Among the subjects discussed are the management of poultry on the farm, the care and marketing of eggs, artificial and natural incubation, and the proper construction of suitable poultry houses for the farm. Practical work will be given in operating the bone-grinder, feed-mixer, and feed-cutter, and in sprouting grain for the purpose of furnishing succulent feed. Equipment in laboratory and plant gives the student an opportunity to familiarize himself with the practical side of the work. This course is for all students taking poultry work for the first time. Second year. Three periods, first term. Doctor KAUPP.

Physiology and Hygiene, First Year.—The principles of physiology and hygiene are essential to the rational feeding and care of the human body, as well as those of animals. Lectures, recitations and demonstrations will be used in covering this subject in an elementary way. Two periods, first term. Doctor SMITH.

Veterinary Science, Second Year.—The lectures on this subject treat of elementary veterinary anatomy, the care of live stock to prevent diseases, and the treatment of some of the most common diseases. Three periods, first term. Doctor ROBERTS, Doctor KOONCE.

Entomology.—This is a short course in which the more noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, second term. Professor METCALF and Mr. SPENCER.

Physics.—Properties of matter, fundamental units, British and metric standard measures, mechanics, liquids, gases, heat, introduction to light and sound. First year. Two periods. Mr. MARTIN.

Algebra.—Wells' *New Higher Algebra.* A thorough treatment of the fundamental conceptions and operations of elementary Algebra, embracing factoring, fractions, simple equations, simultaneous equations in two or more unknowns, problem solving, involution, evolution, theory of exponents, and radicals. First term, five pe-

riods; and second term to March 15, five periods. Mr. HARRELSON, Mr. JETER, Mr. RICKARD.

Plane Geometry.—This course begins the subject and completes three books, special attention being given to original exercises. Five periods, March 15, to end of second term. Mr. HARRELSON, Mr. JETER, Mr. RICKARD.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. First year. Five periods. Mr. PRATT, Mr. WEBBER.

English Composition and Rhetoric.—After a review of grammatical principles, special attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Second year. Three periods. Mr. PRATT, Mr. WEBBER.

Carpentry.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. First year, two periods. Mr. WHEELER.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Lieutenant SPURGIN and Cadet Officers of the Battalion.

I (d). ONE-YEAR COURSE IN AGRICULTURE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Soils and Fertilizers	0	3
Animal Husbandry and Dairying	3	6
Veterinary Science	3	0
Poultry, 50	3	0
Horticulture	3	3
Plant Life	3	0
English	3	3
Carpentry	1	1
Entomology	0	3
Drill	3	3
Totals	25	25

Subjects of Instruction.

Agriculture.—The course in Elementary Agriculture will consist of lectures and recitations on crops, farm equipment, and farm machinery. One period per week will be devoted to practical exercises, including the identification and habit of growth of farm crops and the drawing of plans for farms and farm buildings. The work will be made practical and will be suited to the needs of the student. Three periods. Professor Newman, Mr. Hodson.

Soils and Fertilizers.—This will include the study of the soils of the State, their formation and classification into agricultural types; their physical properties, relations to moisture and air supply; best methods of conserving and regulating the soil moistures; principles and practice of drainage; effect of different soil and crop treatments, such as rotation, cultivation, and fertilization. Considerable attention will be given to humus, farm manures and green manures, and the use and home-mixing of fertilizers, with special reference to the time and methods of using and the best mixtures for the different types of soil. Three periods, second term. Mr. Joslyn.

Animal Husbandry.—Study of breeds, judging and management of live stock, animal breeding, and stock judging. There will be lectures on all the above subjects, supplemented by practical work

as far as possible. Three periods, first and second terms. Professor McNUTT and Mr. SALISBURY.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term. Mr. SALISBURY.

Veterinary Science.—The lectures on this subject treat of elementary veterinary anatomy and physiology, the care of live stock to prevent diseases, and the treatment of some of the most common diseases. Three periods, first term. Doctor ROBERTS, Doctor KOONCE.

Poultry Husbandry.—This course includes a discussion of the poultry industry, market conditions and demands, classes, breeds and types of poultry, and breeding problems, including the selection of laying types, meat types, and utility types of birds. Among the subjects discussed are the management of poultry on the farm, the care and marketing of eggs, artificial and natural incubation, and the proper construction of suitable poultry houses for the farm. Practical work will be given in operating the bone-grinder, feed-mixer and feed-cutter, and in sprouting grain for the purpose of furnishing succulent feed. Equipment in laboratory and plant gives the student an opportunity to familiarize himself with the practical side of the work. This course is for all students taking poultry work for the first time. Three periods, first term. Doctor KAUPP.

Fruit Culture.—This course treats of fruit growing as applied to the different sections of the State and the possibilities embodied in its further development. A text-book on the general subject of fruit culture is supplemented by lectures on the leading fruits, dealing with the kind and preparation of soil for fruits, laying out the orchard, varieties, methods of propagation, planting, cultivation, fertilizing, pruning, harvesting, and marketing. Practical exercises are given in laboratory, orchards, and vineyards, which include budding, grafting, top-grafting; making of cuttings; pruning of fruit and ornamental trees; fruit bud studies, planting and transplanting; identification of varieties; packing; and handling of nursery stock. Three periods, first term. Mr. HAYDEN.

Vegetable Gardening.—This course treats of the trucking industry of the State, and the growing of vegetables for home use. A text-book is used, supplemented by pictures on the growing, handling, and marketing of the leading vegetables. Mr. HAYDEN.

Practical exercises are given in the laboratory and field which include germinative tests of seeds; seed sowing; methods of transplanting and culture; manipulation of garden tools; construction and management of hotbeds and cold-frames; and protection of plants from insects. Three periods, second term. Mr. HAYDEN.

Plant Life.—The structure of seed plants is studied and the general principles of nutrition, growth, reproduction, are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking farm crops, fruit trees, etc.; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Three periods, first term. Professor FULTON.

Entomology.—This is a short course, in which the more noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, second term. Professor METCALF and Mr. SPENCER.

Carpentry.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. Two hours, first and second terms. Mr. WHEELER.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. Three hours a week. Required of one-year students. Mr. PRATT, Mr. WEBBER.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may elect either the drill or three hours extra in some other subject in its place. Lieutenant SPURGIN and Cadet Officers of the Battalion.

THE WORK COURSE.

In order that needy and ambitious young men who are familiar with farm work and are able and willing to do it, may get a practical agricultural training, the College has established what is known as its Work Course. The young men in this course attend classes one week and work on the College plant the other week. They do the work on the College farm, in the orchard, and in the poultry plant. They are paid enough for this work to defray their immediate college expenses. In all, twenty-four young men are admitted to this course, but only twelve are received in any one year. These men are admitted by personal application on blanks furnished by the College, and must pledge themselves to remain in this course two years.

WORK COURSE IN AGRICULTURE.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Soils, Fertilizers	3	3
Animal Husbandry	3	3
Veterinary Science	0	3
Poultry, 50	3	0
Horticulture (Vegetable Gardening and Fruit Growing)	3	3
Botany	0	3
English	3	3
Animal Studies	3	0
Agricultural Mechanics	3	3
Total	24	24

Second Year.

Subjects	Periods a Week	
	1st Term	2d Term.
Agriculture	3	3
Drainage	3	0
Animal Husbandry and Dairying	3	6
Veterinary Science	0	3
Poultry, 50	3	0
Horticulture (Fruit Growing or Vegetable Gardening)	3	3
Plant Diseases	0	3
English	3	3
Entomology	3	0
Agricultural Mechanics	3	3
Total	24	24

Subjects of Instruction.

Agriculture.—The course in Elementary Agriculture will consist of lectures and recitations on crops, farm equipment, and farm machinery. One period per week will be devoted to practical exercises, including the identification and habit of growth of farm crops and the drawing of plans for farms and farm buildings. The work will be made practical and will be suited to the needs of the student. Three periods. First and second years. Professor Newman, Mr. Hodson.

Soils and Fertilizers.—A study of the origin, plant food, moisture, humus, tillage, and fertilization of soils; green manure, stable manure, and commercial fertilizers as factors in the maintenance of soil fertility; purchase and mixing of commercial fertilizers; composition and use of fertilizers to get best results on different classes of soil. Three periods through first year. Mr. Joslyn.

Drainage.—Field work with levels in determining elevation and slope of land and in staking out and grading drains; benefits of drainage; factors determining cost; methods of constructing drains and terraces. Students will be required to work out and submit a plan for the complete drainage of a field. Three periods, fall term, second year. Mr. Joslyn.

Animal Husbandry.—Study of breeds, judging and management of live stock, animal breeding, and stock judging. There will be

lectures on all the above subjects, supplemented by practical work as far as possible. Three periods, first and second terms, first year; first term, second year. Professor McNUTT and Mr. SALISBURY.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term, second year. Mr. SALISBURY.

Veterinary Science.—The lectures on this subject treat of elementary veterinary anatomy and physiology, the care of live stock to prevent diseases, and the treatment of some of the most common diseases. Three periods, second term, first year, and second term, second year. Doctor ROBERTS, Doctor KOONCE.

Poultry Husbandry.—This course includes a discussion of the poultry industry, market conditions and demands, classes, breeds and types of poultry, and breeding problems, including the selection of laying types, meat types, and utility types of birds. Among the subjects discussed are the management of poultry on the farm, the care and marketing of eggs, artificial and natural incubation, and the proper construction of suitable poultry houses for the farm. Practical work will be given in operating the bone-grinder, feed-mixer and feed-cutter, and in sprouting grain for the purpose of furnishing succulent feed. Equipment in laboratory and plant gives the student an opportunity to familiarize himself with the practical side of the work. This course is for all students taking poultry work for the first time. Three periods, first term, first and second years. Doctor KAUPP.

Fruit Culture.—This course treats of fruit growing as applied to the different sections of the State, and the possibilities embodied in its further development. A text-book on the general subject of fruit culture is supplemented by lectures on the leading fruits, dealing with the kind and preparation of soil for fruits, laying out the orchard, varieties, methods of propagation, planting, cultivation, fertilizing, pruning, harvesting, and marketing. Practical exercises are given in laboratory, orchards, and vineyards, which include budding, grafting, top grafting; making of cuttings; prun-

ing of fruit and ornamental trees; fruit bud studies, planting and transplanting; identification of varieties; packing; and handling of nursery stock. Three periods, first year or second year. Mr. HAYDEN.

Vegetable Gardening.—This course treats of the trucking industry of the State, and the growing of vegetables for home use. A text-book is used, supplemented by lectures on the growing, handling, and marketing of the leading vegetables. Mr. HAYDEN.

Practical exercises are given in the laboratory and field. These include germinative tests of seeds; seed sowing; methods of transplanting and culture; manipulation of garden tools; construction and management of hotbeds and cold-frames, and protection of plants from insects. Three periods, first year or second year. Mr. HAYDEN.

Botany and Plant Diseases.—The structure of seed plants is studied and the general principles of nutrition, growth, and reproduction are discussed in an elementary and general way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking field, orchard, and garden crops; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Three periods, second term, first and second years. Professor FULTON.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter writing. Some reading is done in class, and supplementary reading also is assigned for private study. Three hours a week. First and second years. Mr. PRATT, Mr. WEBBER.

Entomology.—This is a short course, in which the more noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, first term, second year. Professor METCALF, Mr. SPENCER.

Animal Studies.—This course will be devoted to a consideration of the relations existing between man and the other animals, excepting insects. The origin of the various animal products will be considered and their commercial importance emphasized. Three hours a week, first term, first year. Professor METCALF, Mr. SPENCER.

Agricultural Mechanics.—In this course instruction will be given in the use of cement on the farm; the operation of gasoline and kerosene engines; water supply; electric lighting outfits for the farm; the making of fences, etc. Three periods a week, first and second years. Professor SATTERFIELD.

WINTER SHORT COURSE IN AGRICULTURE.*

FOUR-WEEKS COURSE IN GENERAL AGRICULTURE.

Begins January 10, and ends February 5, 1916.

The Winter Course in Agriculture is a practical course in farming given by practical men for practical farmers. It is open to all who are engaged in or interested in farming, and is designed to aid the man who wishes to farm in a modern and business way, who wants larger and better returns for his labor and who wants to make a better and more comfortable home on his farm. It is designed to aid farmers who wish:

To manage their soils so that there will be a gain and not a loss in soil fertility;

To use fertilizer and manures with less expense and with better results;

To save soil moisture and plant food;

To save soil from washing away;

To rotate crops so as to add to crop yields and increase the fertility of the soil;

To select the best types and best individual dairy and beef cattle and to feed and manage them to the best advantage;

To judge all kinds of cattle, horses, hogs, sheep and poultry;

To breed live-stock so that each generation may be improved;

To produce and feed balanced rations for the best economy and best results;

To fight insect enemies intelligently and fungous and bacterial diseases with success;

To prevent diseases in live-stock;

To care for live stock so as to keep them healthy and to get the most profitable return from their work and products;

To hatch, feed, and care for poultry; and to inform themselves concerning market demands, disease, and houses.

To breed, graft and otherwise propagate plants;

To know when and how to spray;

To grow fruits and vegetables successfully.

These and other things will be taught simply, practically and as thoroughly as the time will permit.

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* Details will be announced in the Winter Course Circular, which is published in November of each year.

EQUIPMENT.

So far as it can be used, the entire agricultural equipment of the College is put at the service of the members of the Winter Course class. The laboratory and classroom equipment, the several large barns with their equipment of live stock, machines, implements, tools, appliances and silos; the dairy, with its modern equipment; the horticultural plant; the poultry houses and yards; the libraries are all used to make the course both interesting and profitable.

DOES SUCH A COURSE PAY?

All those who have taken this course unite in saying that it has paid them many fold. A thoughtful man has his eyes opened to see so many ways of improving his methods, his soil, his animals, his crops, his orchard, his truck farm and his poultry that such a training as is given in the Winter Course can not fail to bring, not only a handsome economic return, but also a rich return in the greater pleasure given to his work.

EXPENSES.

No tuition is charged for the Winter Course. The College can not offer rooms to students entering this course but will furnish meals at the dining hall at $2.75 per week. Rooms may be rented either in West Raleigh or in Raleigh, at from $2.50 per week up.

ADMISSION.

No examinations are required for entering the Winter Course and any person over eighteen years of age may enter with full privileges. The greater part of the instruction consists of lectures and laboratory exercises and the full time of the students is provided for. Some of the evenings will be devoted to popular lectures and some to student meetings. The regular work of the Winter Course begins January 10 at 8:15 a. m., and all students should arrive the day before so as to arrange for board and room.

For further information write the

PROFESSOR OF AGRICULTURE,
West Raleigh, N. C.

OUTLINE OF FOUR-WEEKS COURSES.

GENERAL AGRICULTURE.

Professor Newman and Mr. Hodson.

Farm Crops.—First a general review of the farm crop situation in the several agricultural divisions of the State will be given. Following this the legumes, small grains and cover crops will be considered from the viewpoints of profitable production of the crops themselves, and their relation to live stock and the conservation of soil fertility. Forage, hay and pasture crops will be studied and discussed. Rotations for corn, cotton, small grain, and tobacco will be planned and discussed and suggestions made for at least a partial reorganization of the present farm cropping systems for increasing the farmer's profits, economizing labor and conserving fertility.

SOILS AND FERTILIZERS.

Professor Sherwin.

This will include a study of the soils of the State; their formation and classification into agricultural types; their physical properties; relation to moisture and air supply; best methods of conserving and regulating the soil moisture; principles and practices of drainage.

The effect of different soil and crop treatments, such as rotation, cultivation, and fertilization, will be studied. Considerable attention will be given to humus, farm manures and green manures, and to the use and home-mixing of commercial fertilizers, with special reference to the time and methods of using and the best mixtures for special crops on different types of soil.

ANIMAL HUSBANDRY.

Professor McNutt and Mr. Salisbury.

Breeds of Live-Stock.—Lectures on this subject will treat of characteristics of the different breeds of live-stock.

Stock Judging.—This work will be made practical and it will be done in the stock judging room where the students will be taught the use of the score card and the points to be considered in the selection of good animals.

Stock Feeding.—Lectures on this subject will treat of the composition and digestibility of the various home-grown and commercial feeds; methods of calculating rations and suggestions as to the most economical feeds to use.

DISEASES OF LIVE-STOCK.

Doctors Roberts and Smith.

Lectures will first briefly cover elementary anatomy, physiology and hygiene of domestic animals. These lectures will include some comparisons between man and domestic animals. Mounted skeletons of the horse and cow and of man will be used to assist in making this part of the anatomy more readily understood.

This course will also cover the care and management of live-stock to prevent disease, and the nature, causes and treatment of the more common diseases and injuries. Special emphasis will be laid upon the means of preventing disease. During the course there will be a practical demonstration of the tuberculin test upon the dairy herd.

AGRICULTURAL BOTANY.

Professor Fulton.

This course will consist of ten lectures. Five of them will treat of the fundamental physiological processes in plants relating to nutrition, growth and reproduction. The remaining five will treat in a practical way of the important fungous diseases of field, garden and orchard crops. Ample illustrative material will be used.

SOILS AND DRAINAGE.

Professor Sherwin.

Forces in the formation of soil; causes of variation in the natural fertility; effect of artificial methods of soil management; influence of cultural methods, fertilization, soil moisture, humus, and lime; soils best adapted to different kinds of farming, to different fertilizers, and to different crops; drainage of farm lands.

Special soils of North Carolina will be given special consideration.

ENTOMOLOGY.

Professor Metcalf.

The aim of this course will be to teach the farmer to recognize his insect friends and enemies. We pay a much greater tax to insects each year than we do to the State and local government in taxes for several years, and yet there are many farmers who know practically nothing about insects. The farmer should know something about the lives of these interesting animals and how to control the injurious forms.

The course will be illustrated by specimens, charts, and photographs in order to familiarize the farmer with the principal insects attacking farm crops and fruit trees.

POULTRY RAISING.

Doctor Kaupp.

Since ninety-five per cent of the poultry produced in this country is grown on the farms, poultry culture in this course will be treated from the farmer's standpoint.

In this connection attention is called to the great and growing demand for poultry products. A few years ago eggs sold at ten cents per dozen, but now forty to sixty cents is not unusual at certain times of the year. Formerly young chickens brought from ten to twenty-five cents each and old hens twenty-five cents. Now thirty-five cents is a low price on the local market for young stock and old hens bring from seventy-five cents to a dollar.

The breeds and varieties best suited for the farmer, both for eggs and meat, will have first consideration.

The houses and location of same with reference to convenience and health of the flock will also be discussed.

As the annual loss from bad and improperly handled eggs for market for the United States is $25,000,000, of which North Carolina bears more than her share, particular stress will be laid on the production of good marketable eggs.

The reasons why poultry undrawn, dry picked keeps better and commands a higher price in the best markets of the country will be demonstrated.

Caponizing, one of the easiest operations learned, will have special attention. By this operation thousands of dollars can be saved to the State, increasing the quality and quantity of flesh on the thousands of surplus cockerels now marketed yearly.

Incubating and brooding, both natural and artificial, will have thorough treatment.

The College and Station flocks consist of nineteen of the most popular and useful varieties of poultry, embracing both the general-purpose and egg breed of fowls. They are kept in several types of houses so that the different styles can be seen and compared.

The incubator cellar contains fifteen machines of several different standard makes and the students have the opportunity of becoming familiar with the best.

Students have the advantage of the experimental work conducted by the Department along the lines of incubating, brooding, feeding, and disease.

To those who may wish to specialize in poultry culture as far as time will admit, opportunity will be given to become familiar with the details of running a poultry plant by being given an incubator and brooder, a pen of fowls to care for, etc.

HORTICULTURE.

Professor Pillsbury and Mr. Hayden.

The course in Horticulture is designed to meet the demand for practical instruction along the lines of propagation, fruit growing, and vegetable gardening. Especial consideration will be given to the application of principles and methods to North Carolina conditions.

Plant Propagation is to be presented by means of lectures, demonstrations, and actual practice. The methods used in multiplying plants, such as seed sowing, separation and division, the making of cuttings and layers, and budding and grafting, will be treated in turn.

Fruit Growing is to be considered both from the standpoint of the farmer and that of the fruit grower. It is to be treated by means of lectures on the principal fruit crops, and demonstrations and practice in the selection of sites and soils, the laying out of orchards, the planting, pruning and training of trees, spraying, and the marketing of the fruit.

Vegetable Gardening will treat of the culture of the leading vegetables for both market and home use. Every farm should be supplied with a home garden, and the consideration of this branch of Horticulture is vital to the success of the farmers of the State. Lectures upon the principal crops will be supplemented by demonstrations and practice in the selection of sites and soils, formation of garden plans, in the construction and use of cold-frames and hot-beds, starting early vegetables, transplanting, cultivation, and marketing.

Equipment.—The Department of Horticulture has under its management about twenty-five or thirty acres of land which is devoted to the culture of all the standard tree, vine, and small fruits and vegetables which it is possible to grow successfully in this climate, as well as other varieties maintained for instructional purposes.

In the fruit plantation, which is very complete, are to be found standard sorts of apples, pears, peaches, plums, cherries, quinces, persimmons, pecans, figs, muscadine grapes, fox grapes, raspberries, blackberries, dewberries, and strawberries. There is also a nursery in which both fruit and ornamental plants are grown. This is es-

pecially valuable in providing material and opportunity for carrying on various methods of plant propagation, as well as in furnishing stock of all kinds for planting about the grounds.

The area devoted to vegetable gardening is quite extensive and is conducted in a large measure upon a commercial basis. This is possible because of an arrangement with the Department whereby the College dining-room is supplied with fresh vegetables throughout the year. Here all the leading vegetables are grown in season according to the best practice in rotation, fertilization, tillage and harvesting, and the student is provided with ample materials for study and practice.

The Horticultural grounds are also worthy of study as to the design as a whole, and provide an example of how a home may be made attractive by means of lawn, trees, shrubs, and vines.

AGRICULTURAL EXTENSION.

Professor T. E. Browne.

The Department of Agricultural Extension was organized July 1, 1909. This department was and is made possible by the help of the General Education Board in the United States. The work is closely correlated with that of the United States Department of Agriculture. The object of this department is to link the scientific agricultural work of the College and Station to the practical work on the farms of the State. Each year the trained scientific workers of America add to the fund of information needed by progressive farmers. The object of this department is to carry this information to the busy men on the farm, and to help in the teaching of farm science in our schools. This is done by addresses to farmers, by farm schools held in different sections, holding seed-corn days, organizing boys' corn clubs, addressing County Teachers' Associations in the interest of agricultural education in the public schools, and in such other ways as time and occasion may permit.

II. ENGINEERING COURSES.

a. Four-year Course in Civil Engineering.
b. Four-year Course in Mechanical Engineering.
c. Two-year Course in Mechanic Arts.
d. Four-year Course in Electrical Engineering.
e. Four-year Course in Chemistry.

The Engineering courses give a thorough grounding in such fundamental sciences as Mathematics, Physics, and Chemistry, and thorough drill in the application of the principles thus learned to engineering problems. The student is given practice in the use of engineering instruments and methods, and is encouraged to rely upon his own resources in the solution of problems. Though the courses are primarily technical and practical, they include subjects of general culture throughout all four years.

The Freshman years of all the Engineering Courses are identical and include a great deal of practice. The student in the different shops learns the use of tools and the handling and manipulation of materials of construction. Instruction is given in working wood and iron. In the Sophomore year this work is continued in the pattern-making shop and in the foundry. Also in the Physical laboratory much attention is paid to the practical value of such instruction. Here the student is taught the science of measurement and is trained to observe and work accurately. During these two years he is also given a thorough training in Mechanical Drafting, skill in which is essential in all lines of engineering work.

Differentiation of the different engineering courses begins in the Sophomore year. The practical work here, in the shop, in the field or in the laboratory, directs the student's attention to the specific phases of that branch of the profession he is to follow. In the Junior year the study of engineering methods is begun and is continued more fully in the Senior year.

Upon the satisfactory completion of these courses the degree of Bachelor of Engineering is conferred. The advanced degrees of Civil Engineer, Electrical Engineer, and Mechanical Engineer may also be conferred upon graduates of three years standing who have had responsible charge of important work, upon complying with the College requirements (see page 166).

More detailed descriptions of the different courses follow.

COURSE IN CIVIL ENGINEERING.

The aim of the course in Civil Engineering is to give such training as will enable our young men to take an active part in the work of advancing our State along material lines—developing its water-power, building railroads and public highways, constructing water supply and sewerage systems for our towns, etc. The student is given a large amount of practical work in the field and draughting-room, and acquires a fair degree of efficiency in the use of the various surveying instruments, and in draughting. At the same time it is recognized that a successful engineer requires a well-trained mind—one that reasons logically, accurately, and quickly. Therefore a thorough course is given in all those branches of applied mathematics which are involved in the solution of engineering problems.

The aim has been to make this pre-eminently a technical course; but subjects of general culture are included in order to give the student a broader mental training and better preparation for social and business life.

Civil Engineering Equipment.

There is a complete equipment of all instruments necessary to civil engineering field work. The classrooms, drawing-rooms, and laboratories are in Winston Hall.

II (a). The Four-year Course in Civil Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.*	
	1st Term.	2d Term.
Mechanical Drawing, 230†	2	2
Woodwork, 235	2	2
Forge Work, 236	--	
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Physics, 280	4	4
Physical Laboratory, 282	1	1
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Architecture, 220	2	--
Architectural Drawing, 221	2	2
Advanced Algebra, 343	5	--
Trigonometry, 344		
Analytical Geometry, 345	--	5
Descriptive Geometry, 200	--	2
Physics, 281	2	2
Physical Laboratory, 283	1	1
Inorganic Chemistry, 302	3	3
Inorganic Chemistry (laboratory), 303	2	2
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Drill, 390	3	3
Military Tactics, 391	1	1
Totals	24	24

*The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Road Building, 212	1	1
Surveying, 202, 206	2	2
Surveying (field work), 207	2	2
Construction, 205	2	--
Topographical Drawing, 203	2	2
Graphic Statics, 201	--	2
Mechanics, 204	3	3
Calculus, 346	5	5
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	23	23
Modern Languages, 370, 373	3	3

Senior Year.

Mechanics of Materials, 215	3	--
Roofs and Bridges, 209	3	--
Bridge Design, 210	--	3
Municipal Engineering, 211	--	2
Surveying (field work), 208	2	--
Hydraulics, 216	--	2
Integral Calculus, 346	3	--
Railroad Engineering, 206	3	2
Reinforced Concrete, 214	--	3
Astronomy, 213	--	2
Laboratory, 217	--	2
Mechanics, 204	2	--
Journals, 365	3	--
Elect one of the following:		
Classics, 366	--	3
Economics, 367	--	3
Military Drill, 390	3	3
Modern Languages, 371, 374	3	3
Totals	22	22

Subjects of Instruction.

200. Descriptive Geometry, Stereotomy.—Text-book, lectures, problems, and completed drawings. Two periods, second term. Required of Sophomores in Civil Engineering. Mr. POOLE.

201. Graphic Statics.—Determination of stresses in frame structures by graphical methods. Lectures and original problems. Two periods, second term. Required of Juniors in Civil Engineering. Professor MANN.

202. Surveying.—Land surveying, leveling, elements of triangulation, topographical surveying, road location. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN.

203. Topographical Drawing.—Conventional signs, computations, forms of field notes, methods of platting, completed map from field notes. Two periods. Required of Juniors in Civil Engineering. Professor MANN.

204. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of motion, constraining and accelerating forces, dynamics of a rigid body, momentum and impact, work, power, friction, application of principles to various engineering problems. Three periods. Required of Juniors in Civil Engineering. Two periods, first term. Required of Seniors. Professor RIDDICK, Professor MANN.

205. Construction.—Masonry, foundations, railroads, dams, retaining walls, arches, etc. Baker's *Masonry Construction.* Lectures. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN.

206. Railroad Engineering.—Reconnaissance, preliminary and location surveys, cross sections and compound curves. Two periods, second term. Required of Juniors. Searles's *Field Engineering.* Spirals, Railroad Construction, Estimates, etc. Three periods, first term, two periods, second term. Required of Seniors. Searles's *Railroad Spirals*, Crandall & Barnes's *Railroad Construction.* Professor MANN.

207. Surveying.—Field work. Use of instruments, compass, level, transit, and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes, and platting. Two periods. Required of Juniors in Civil Engineering. Professor MANN, Mr. POOLE, Mr. TUCKER.

208. Surveying.—Field work. Triangulation and topography, use of sextant and plane table, surveys for sewers, waterworks, etc. Two periods, first term. Required of Seniors in Civil Engineering. Professor MANN, Mr. POOLE, Mr. TUCKER.

209. Roofs and Bridges.—Determination of stresses in roof and bridge trusses by the analytical method. Merriman's *Roofs and*

Bridges. Original problems. Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

210. Bridge Design.—Calculation of stresses, design, specifications, and estimate of cost of a wooden rooftruss and a steel railway bridge. Three periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

211. Municipal Engineering.—Text-books, lectures. Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

212. Road Building.—Text-book on construction of roads, streets, and pavements. Lectures on practical roadmaking in North Carolina. One period. Reqired of Juniors in Civil Engineering. Professor RIDDICK.

213. Astronomy.—Determination of azimuth, latitude and longitude, and time. Comstock's *Astronomy for Civil Engineers.* Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

214. Reinforced Concrete.—Turneaure & Maurer's *Principles of Reinforced Concrete Construction.* Problems in beams, columns, retaining walls, etc. Three periods, second term. Required of Seniors in Civil Engineering. Professor MANN.

215. Mechanics of Materials.—Study of stresses in beams, columns, shafts, etc. Merriman's *Mechanics of Materials.* Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

216. Hydraulics.—Methods of measuring flow of streams, laws governing flow in pipes and conduits, determination of water-power in streams, testing of hydraulic motors. Text-book, Merriman's *Hydraulics.* Two periods, second term. Required of Seniors in Civil, Mechanical, and Electrical Engineering. Professor RIDDICK.

217. Laboratory.—Tests of cement and other materials. Hydraulic measurements. Two periods, second term. Required of Seniors in Civil Engineering. Professor MANN, Mr. POOLE.

ARCHITECTURE.

220. Architecture.—Building materials, methods of constructing buildings, plans, specifications, bill of materials, estimate of cost, design of buildings. Lectures. Two periods, first term. Required of Sophomores in Civil Engineering. Mr. POOLE.

221. Architectural Drawing.—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Two periods. Required of Sophomores in Civil Engineering. Mr. POOLE.

FOUR-YEAR COURSE IN MECHANICAL ENGINEERING.

The regular four-year course in Mechanical Engineering offers a training in the fundamental principles of design, construction, manufacture, and operation of all classes of standard and special machinery, and their economic application to railroads, steamships, mills, shops, factories, and power plants, as well as in the technical and executive management of the manufacturing and transportation industries. To this end the course of instruction is as broad as is possible to give in a technical school.

The course begins with a thorough training in mathematics, physics, and chemistry as a foundation for the appropriate technical work which is developed along several parallel lines. Applications of these fundamental sciences to the physical properties of the materials of construction, especially the metals and their practical manipulation, lead through the courses in mechanics, resistance of materials, shop processes, the materials-testing laboratory, drafting and kinematics, to the principles of design, which are fixed by application to the design of machinery for the execution of any kind of process in which machinery is either absolutely essential or more economical than corresponding hand execution of the same process. The principles underlying the performance of machinery are developed by courses in thermodynamics, mechanics, and hydraulics, with experimental laboratory demonstrations. The instruction in the performance, design, and manufacture of machine and power units in the classroom and laboratory, supplemented by visits to power plants and factories, is the basis of the work on the design of plants and mills.

To success in any one of these particular branches or phases of this profession a thorough technical training is absolutely indispensable, for it supplies the broad, general foundation, which must in its turn be supplemented by practical experience and by contact with the special line of work chosen.

II (b). The Four-year Course in Mechanical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mechanical Drawing, 230	2	2
Woodwork, 235	2	2
Forge Work, 236	--	2
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Physics, 280	4	4
Physical Laboratory, 282	1	1
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Descriptive Geometry, 231	--	2
Mechanical Drawing, 232	--	2
Foundry, 237	2	--
Pattern-making, 238	2	--
Advanced Algebra, 343	5	
Trigonometry, 344		
Analytical Geometry, 345	--	5
Physics, 281	2	2
Physical Laboratory, 283	1	1
Inorganic Chemistry, 302	3	3
Inorganic Chemistry (laboratory), 303	2	2
Advanced Rhetoric, 362	3	3
Public Speaking, 363		
Military Drill, 390	3	3
Military Tactics, 391	1	1
Totals	24	24

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Steam Engines and Boilers, 241	3	3
Mechanics, 250	2	2
Machine Design, 233	2	2
Machine-shop, 239	2	2
Electrical Engineering, 285	2	2
Electrical Laboratory, 290	1	1
Calculus, 346	5	5
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	23	23
Modern Languages, 370, 373	3	3

Senior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Applied Mechanics, 251	3	--
Mechanics of Materials, 252	--	2
Machine Design, 234	3	2
Machine-shop Work, 240	2	2
Power Plants, 243	3	2
Gas Engines, 244	3	--
Industrial Engineering, 245	--	2
Heating, Ventilation, and Refrigeration, 247	--	3
Power-plant Design, 248	--	2
Steam Engineering Laboratory, 249	2	2
Integral Calculus, 346	3	--
Hydraulics, 216	--	2
Elect one of the following subjects:		
Machine Shop	2	2
Military Drill, 390	3	3
Modern Languages, 371, 374	3	3
Journals, 365	3	--
Classics, 366	--	3
Economics, 367	--	3
Totals	22	22

Mechanical Engineering Equipment.

Buildings.—The drawing rooms and recitation rooms are in the Mechanical Building; while the forge shop, foundry, wood shop, dry kiln, machine shop, and mechanical laboratory are in the new shop building, which has just been completed. This new building is of brick and has a floor space of 26,350 square feet. It contains the machinery from the old shops as well as many new machines. Each shop contains a demonstration lecture room of which use is made for recitation work. The Power Plant is also utilized for experimental engineering.

Drawing Rooms.—The drawing rooms are well lighted, heated, and ventilated, and are very spacious. They are equipped with

drawing tables, board and filing cabinets, models of valves, pumps, machine parts, etc., etc.

Forge Shop.—This is a well lighted and ventilated room of 35 by 72 feet. It is equipped with twenty double and two single forges, thus accommodating forty-two students at one time. Blast is furnished from a Sturtevant blower. The shop is equipped with two emery and two buffing wheels; a Buffalo Forge Company's hand drill; a down-draft exhaust system operated by a 120-inch Sturtevant exhaust fan, for removing smoke and gases from the fires; anvils, a power hammer, and all necessary hand tools, all of them new equipment. There is a large tool room and office; and there are raised seats for lecture work.

The Foundry.—This will accommodate about forty students at one time. The floor is 35 by 77 feet, and the equipment consists of a Northern Engineering Works 36-inch cupola, with blast by a Buffalo blower. There is also a crucible brass furnace of good size. For moulding machines the foundry is equipped with an Arcade squeezer and a Model moulding machine, both made by the Arcade Manufacturing Company, and a Pridmore mould machine made by Henry Pridmore. A Cadet core oven and all necessary tools for bench and floor work complete the equipment.

Woodshop.—This is a very large room, 50 by 118 feet, and has all the conveniences of a modern shop. It contains the following machines besides the new ones which have been added with the new building: fifteen double carpenters' benches which accommodate thirty students, and all necessary tools for each bench; thirty 12-inch turning lathes, each lathe being fully equipped with turning tools; a rip and a cut-off saw bench, foot feed with dado attachment; a 40-inch surface planer; a 12-inch and a 6-inch hand jointer or buzz planer; a universal boring machine; a 6½-inch tenoning machine with cope heads; a 6-inch sash and blind sticker; a 34-inch band saw; an iron frame self-contained jig-saw; a sharper or edge-moulding machine, with a very complete set of moulding cutters; a chain mortiser; a dove-tailing machine; a belt-sanding machine; a hollow chisel mortiser; a planer knife grinder; a 38-inch grindstone; a wood-trimmer; an adjustable miter box; a steam glue-heater, and a large assortment of screw and bar clamps, both iron and wooden. The shop also contains an up-to-date tool room.

Dry Kiln.—This is a large room underneath the wood shop, and is used for storing and drying lumber. It has a cement floor and is heated by steam pipes.

Machine Shop.—This well equipped shop is 50 by 100 feet, and contains many new machines. It has a cement floor and large win-

dows, which make it an ideal room for machine work. There are the following machines: A 16-inch Davis & Egan lathe, with 10-foot bed; a 14-inch Windsor lathe with 5-foot bed; a 14-inch Putnam lathe with 4-foot bed; a 14-inch Champion lathe with 6-foot bed; a 14-inch Flather lathe with a 6-foot bed; three 14-inch lathes with 6-foot beds (built in College shops by students), a 26-inch by 44-inch by 12-foot bed McCabe double spindle lathe; a 14-inch Champion lathe; a 12-inch Seneca Falls lathe; a 16-inch Gould & Eberhard shaper; an 18-inch Prentiss shaper; a 24-inch upright Bickford drill press; a 32-inch American drill press; a Brown & Sharpe Universal milling machine, with all attachments; a 20-inch by 5-foot Pease planer; one large and one small emery tool grinding machine; a Greenwich arbor press; an electric center grinder; a Whiton centering machine, and a twist drill grinder. The machines have full equipment of chucks, rests and tools. The benches are well provided with vises.

Mechanical Laboratory.—This room is 45 by 95 feet, and is well equipped with the necessary apparatus for performing commercial tests on the various mechanical engineering problems.

For general laboratory there are various measuring instruments, thermometers, pyrometers, steam engine indicators, planimeters, tachometers, pressure and vacuum gages, a Crosby gage tester, steam calorimeters, both throttling and separating, an Emerson fuel calorimeter for testing coal and oils, an apparatus for testing oil for flash point, burning point and viscosity, an apparatus for flue gas analysis, both indicating and recording, and apparatus rigged for making calibration tests on thermometers, indicator springs and steam gauges.

For the work in steam engineering there are the following: A 40-horsepower Skinner automatic engine, to which is connected a Wheeler surface condenser with a Blake air pump; a 25-horsepower steam engine, a 10-horsepower engine, a 10-horsepower De Laval steam turbine, and apparatus arranged for making tests on injectors, pumps, flow of fluids through orifices and nozzles. Besides the above, which are used only for experimental purposes, the College Power Plant, with a 100-horsepower Skinner automatic steam engine, a 135-horsepower De Laval steam turbine, with all auxiliaries, as well as the boiler equipment, consisting of two 200-horsepower Atlas and two 75-horsepower Babcock & Wilcox water tube boilers, are all available for tests.

For making efficiency and economy tests on gasoline and oil engines, the following equipment is available: One 11-horsepower Foos gasolene engine; one 3-horsepower International Harvester

Company gasolene engine; one 2-horsepower McVicker gasolene engine; one 3-horsepower, 2-cycle, Detroit oil engine; one 16-horsepower Ford Automobile engine; a one-horsepower engine, built in shops, and a 5-horsepower De La Vergne oil engine. To this collection it is hoped to add one or two more oil engines in the near future.

For the course in testing of materials the following are available: A 50,000-pound Riehle automatic testing machine, arranged for tensional, compression and transverse tests; a 15,000-pound Olsen testing machine for small specimens, and necessary auxiliary apparatus, such as micrometers, extensometers, etc., for obtaining results of the various tests.

Subjects of Instruction.

230. Mechanical Drawing.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawings from working sketches of machine details; tracing; blueprinting; elements of descriptive geometry; cylinders; cones; prisms; intersections and development; miscellaneous problems. Two periods. Required of Freshmen in Engineering. Mr. Briggs.

Note.—Each student will be required to furnish, at his own expense, the following outfit. To insure uniformity in grade of instruments and other supplies, the department keeps for sale practically at cost, the articles named below. These may be purchased elsewhere, but must be approved by the department. Estimated cost of outfit, $12 to $15.

Text-book.
Drawing board, 22 by 32 inches.
T-square, 30 inches.
60° triangle, 9 inches, transparent.
45° triangle, 7 inches, transparent.
12-inch triangular architect's scale.
4 H pencil. H or F pencil.
Erasers for ink and pencil.
Penholder with fine points.
Pencil sharpener.

Instrument set consisting of:
6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen; 4½-inch ruling pen.

231. Descriptive Geometry.—General definitions; third angle; representation of points, lines and planes; profile plane; projected views; line and plane essentials; relations of points, lines and planes in space; intersection of lines and planes; curved surfaces; development of surfaces; plane sections of solids. During the term many practical problems are given for solution and construction. Two periods, second term. Required of Sophomores in Mechanical and Electrical Engineering. Prerequisite, Mechanical Drawing 230. Professor SATTERFIELD, Mr. BRIGGS.

232. Mechanical Drawing.—Making drawings and calculations setting forth the general principles of Descriptive Geometry. The design of cams to give specified motions, and problems in elementary machine design. Two periods, second term. Required of Sophomores in Mechanical and Electrical Engineering. Prerequisite, Mechanical Drawing 230. Mr. RICHARDSON.

233. Machine Design.—A study of materials used in machine construction; analysis of stresses in machine parts; design of machine parts, considering them as compression, tension, or torsion members; modification of the above to suit practice and for the sake of general appearance. Design of simple machines, such as shears, punches, air hoists, riveters, etc., all calculations to be made in standard form and handed in with the assigned problem. Two periods throughout the year. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Descriptive Geometry 231, and Mechanical Drawing 230 and 232. Associate Professor ELLIS.

234. Machine Design.—Advanced Machine Design based on the thermal and mechanical problems involved in the design of a steam engine for power, economy and regulation. The students are given the requirements of the engine—such as speed, regulation and point of cut-off for required horsepower—and are required to make calculations for the same; draw all theoretical diagrams from the ideal indicator card to the rectified tangential pressure diagrams; valve diagrams, showing different events of valve; details of cylinder, frame, fly-wheel, governor, etc. Three periods, first term; two periods, second term. Required of Seniors in Mechanical Engineering. Prerequisites, Machine Design 233, Mechanics 250, and Heat Engines 241. Associate Professor ELLIS.

235. Woodwork.—The use and care of the ordinary woodworking bench tools. Exercises in laying out and working from drawings, sawing, planing, and making of joints. The use and care of woodworking machines such as saws, planers, shapers, dovetailers,

tenoners, etc. Exercises in wood-turning. Work on repairs about the College. Two periods. Required of Freshmen and first-year Short Course Men. Mr. WHEELER.

236. Forge Work.—Treatment of iron and steel, the uses of the fuller, swage, punch and set hammer; drawing and upsetting; butt, scarf, and jump welding; making of forge and machine shop tools, with tempering of tool steel; exercises on power hammer. Special work on equipment and repairs about the College. Required of Freshmen and first-year Short Course Men. Two periods, recitations and exercises, second term. Mr. NICHOLS.

237. Foundry.—Recitations and exercises in foundry work, including working condition of the sand, use and care of tools, moulding, core-making, management of cupola and crucible furnaces in iron and brass melting. Required of Sophomores in Mechanical and Electrical Engineering and second-year Short Course Men. Two periods, first term. Mr. NICHOLS.

238. Pattern-making.—A study of pattern-making in its relation to moulding; the practical construction of patterns to prevent warping and twisting; the making of special patterns; cores and core-boxes; introducing draft, shrinkage, finish, and the appliances and usage of modern pattern work. Required of Sophomores in Mechanical and Electrical Engineering. Two periods, first term. Prerequisite, Woodwork 235. Mr. WHEELER.

239. Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling and shaper work. Two periods. Required of Juniors in Mechanical Engineering. One period. Required of Juniors in Electrical Engineering. Mr. PARK.

240. Machine-shop Work.—Making the parts of some machine, or of an engine. Making tools, such as taps and reamers. Laying out work. Working from drawings, duplicate and interchangeable parts. Working to standard gages. Two periods. Required of Seniors in Mechanical Engineering. Mr. PARK.

241. Heat Engines.—A study of elementary thermodynamics, properties of steam, calorimeters and mechanical mixtures, combustion and fuels, boilers and boiler auxiliaries, steam engines, including types and details, valve gears, and governors; layout and necessary calculations for steam-engine testing, condensers and air pumps, steam turbines, gas engines, and economy of heat engines. Three periods throughout the year. Required of Juniors in Mechanical Engineering. Two periods throughout the year. Required of Juniors in Electrical and Textile (435) Engineering.

Prerequisites, Physics 281 and Advanced Algebra 343. Professor SATTERFIELD, Mr. PARK, Assistant Professor VAUGHAN.

242. Mechanism.—An analysis of the motions and forms of machines. Among the subjects discussed are: instantaneous centers, kinematic chains, velocity diagrams, parallel and straight-line motions, cams, gearing, worms and worm wheels, belting and intermittent motions. The solution of a large number of practical problems, by both graphical and mathematical methods, is required. Two periods, first term. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Descriptive Geometry 231 and Mechanical Drawing 232. Associate Professor ELLIS.

243. Mechanical Engineering of Power Plants.—A critical study of steam boilers and furnaces, of boiler-room accessories, of coal and ash handling, and of piping, steam engines, steam turbines, pumps, condensers, traps, separators, etc. Special attention is paid to the conditions under which different equipment would be used, and to the selection of the apparatus, also to the cost of power, depreciation, repairs, etc. Three periods, first term; two periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD and Assistant Professor VAUGHAN.

244. Gas Engines.—Thermodynamics of the gas engine, theoretical comparisons of various types of internal combustion engines. Combustion, including combining weights and volumes, heating value, air required, etc. Gas-engine fuels; solid, liquid, and gas. Gas producers, carburetors, and vaporizers. The fuel mixture, pressure, and temperature resulting from combustion. Modern types of internal combustion engines, auxiliaries, including ignition, starting apparatus, and mufflers; regulation, efficiency, and economy. Three periods, first term. Required of Seniors in Mechanical Engineering. Prerequisites, Heat Engines 241 and Mechanics 250. Assistant Professor VAUGHAN.

245. Industrial Engineering.—A study of the origin and principles of the Industrial System; the nature and distribution of expense; labor; materials, etc. Two periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

247. Heating, Ventilation, and Refrigeration.—This subject treats of the various methods of heating, such as by open fires, hot air, steam and hot water; of the proper ventilation of all types of buildings; of methods of utilizing the waste heat from power plants for the heating of buildings; of the various types of ice-making and refrigerating machinery, and their installation, care, and management; and of the cost of heating and cooling. Three

periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

248. Power Plant Design.—A study of the selection, location, and proportioning of the essential details of steam and gas power plants, such as engines, boilers, pumps, piping, condensers, feed water heaters, chimneys, etc. The course consists of the study of references, lectures on the subject, and the drawing of plans of plants showing all details. Two periods, second term. Required of Seniors in Mechanical Engineering. Prerequisite, Heat Engines 241. Associate Professor ELLIS.

249. Steam Engineering Laboratory.—Calibration of the various instruments used in performing tests on various mechanical engineering problems. Practice in the use of calorimeters, both steam and fuel; indicators, planimeters, etc. Testing of lubricants for flash point, burning point, and viscosity. Checking the formulas used in determining the flow of fluids through orifices and nozzles. Efficiency tests of boilers, steam engines, injectors, pumps, and gasolene and oil engines. Testing of materials used in engineering construction. Two periods throughout the year required of Seniors in Mechanical Engineering. One period throughout the year required of Seniors in Electrical Engineering. Prerequisites, Heat Engines 241 and Mechanics 250. Assistant Professor VAUGHAN, Mr. WHEELER.

250. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of impact, constraining and accelerating forces, momentum and impact, work, power, friction, application of principles to various engineering problems. Elasticity and mechanics of fluids. Preparatory to Applied Mechanics 251. Two periods throughout the year. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Physics 280, Algebra 340, and Trigonometry 344. Assistant Professor VAUGHAN.

251. Applied Mechanics.—A study of the laws of equilibrium and motion as applied to a particle or to a rigid body; analytic treatment of stresses in structures; center of gravity, moment of inertia, energy and work, friction and dynamics of machinery. Three periods, first term. Required of Seniors in Mechanical and Electrical Engineering. Prerequisite, Mechanics 250. Associate Professor ELLIS.

252. Mechanics of Materials.—A study of the effects of loads and forces in engineering structures by use of the stress-strain dia-

gram. Determination of ultimate stress and elastic limit of materials, with investigation for maximum and minimum bending moment and shear. Torsion and its application to shafting, with theories as to elastic limit and failure. Two periods, second term. Required of Seniors in Mechanical and Electrical Engineering. Prerequisites, Mechanics 250 and 251. Associate Professor ELLIS.

253. Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general, laborsaving devices, etc., etc. Required of Freshmen in Civil, Electrical and Mechanical Engineering. Two periods, first term. Professor SATTERFIELD and Assistants.

MECHANIC ARTS.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following two-year course in Mechanic Arts is offered.

This course does not lead to graduation, and it is not, in any sense, intended as a preparatory course for the regular four-year classes. It is designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen sphere of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take this course will be carefully drilled in the handicraft of their art, and in the application of elementary science to the shop, drawing-room, and power plant.

II (c). TWO-YEAR COURSE IN MECHANIC ARTS.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mechanical Drawing	3	3
Woodwork	2	2
Forge Work	--	2
Shop Lectures	2	--
Mechanical Technology	--	2
Physics	2	2
Algebra	5	5
Plane Geometry	--	
English	5	5
Military Drill	3	3
Totals	22	24

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Machine Drawing	3	3
Machine-shop Work	3	3
Power Machinery	3	3
Algebra	5	--
Geometry	--	5
English	3	3
Elementary Mechanics	--	2
Gas Engine Laboratory	--	1
Machine Shop or Drawing	--	2
Pattern Work	2	--
Foundry	2	--
Drill	3	3
Totals	24	24

Subjects of Instruction.

First Year.

Mechanical Drawing.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawing from working sketches of machine details; tracing; blueprinting; elements of Descriptive Geometry; cylinders; cones; prisms; intersections and developments; miscellaneous problems. Three periods. Mr. Richardson.

Note.—Each student will be required to furnish at his own expense the following outfit. To insure uniformity in grade of instruments and other supplies, the department keeps for sale, at practically cost, the articles named below. These may be purchased elsewhere, but must be approved by the department. Estimated cost of outfit, $12 to $15.

Text-book.
Drawing board 21 by 30 inches.
T-square 30 inches.
60° triangle 9 inches, transparent.
45° triangle 7 inches, transparent.
12-inch triangular architect's scale.

Irregular curve.
4 H pencil. H or F pencil.
Erasers for ink and pencil.
Penholder with fine points.
Pencil sharpener.

Instrument set consisting of:

6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen, 4½-inch ruling pen.

Woodwork.—The use and care of the ordinary woodworking bench tools. Exercises in laying out and working from drawing; sawing, planing, and making of joints. The use and care of woodworking machines, such as saws, planers, shapers, dovetailers, tenoners, etc. Exercises in wood-trimming. Work on repairs about the College. Two periods. Mr. WHEELER.

Forge Work.—Treatment of iron and steel, the uses of the fuller, swage, punch and set hammer; drawing and upsetting; butt, scarf, and jump welding; making of forge and machine shop tools, with tempering of tool steel; exercises on power hammer. Special work on equipment and repairs about the College. Two periods, second term. Mr. NICHOLS.

Mechanical Technology.—Classification and use of woodworking and forging tools and machines. Methods of woodworking and forging. Arrangement, sizes, and care of belting and shafting; elementary power problems, steel-making, etc. Two periods, second term. Assistant Professor VAUGHAN.

Algebra.—Wells' *New Higher Algebra.* A thorough treatment of the fundamental conceptions and operations of Elementary Algebra, embracing the subjects of factoring, fractions, simple and simultaneous equations, involution, evolution, theory of exponents and radicals. Five periods, first term; five periods second term to March 15. Mr. HARRELSON, Mr. JETER, Mr. RICKARD.

Plane Geometry.—Wentworth's *Plane and Solid Geometry.* Three books of Plane Geometry, including numerous original exercises. Five periods, March 15 to end of second term. Mr. HARRELSON, Mr. JETER, Mr. RICKARD.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private

study. Five hours a week. Required of first-year students. Mr. WEBBER.

Physics.—Properties of matter, fundamental units, British and metric standard measures, mechanics, liquids, gases, heat, introduction to light and sound. Two periods. Mr. MARTIN.

Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general; labor-saving devices, etc., etc. Two periods, first term. Professor SATTERFIELD and Assistants.

Second Year.

Foundry.—Recitations and exercises in foundry work, including working condition of the sand, use and care of tools, moulding, core-making, management of cupola and crucible furnaces in iron and brass melting. Elective for second year. Two periods, first term. Mr. NICHOLS.

Machine Drawing.—Sketching and drawing of machine parts and machines. Detail working drawings. Tracing and blueprinting. Three periods. Prerequisite, first year Mechanical Drawing. Associate Professor ELLIS.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper-work. Three periods. Mr. PARK.

Power Machinery.—Descriptive study of the machinery of steam power plants, engines, boilers, condensers, pumps, steam turbines, piping, care and management, study of gas and oil engines. Combustion of fuels. Indicators; indicated, brake, and boiler horse-power problems. Three periods. Mr. PARK.

Pattern-making.—A study of pattern-making in its relation to moulding; the practical construction of patterns to prevent warping and twisting; making of special patterns, cores, and core-boxes, introducing draft, shrinkage, finish, and the appliances and usages of modern pattern work. Prerequisite, Woodwork. Elective for second year. Two periods, first term. Mr. WHEELER.

Algebra.—Wells' *New Higher Algebra.* Begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Prerequisite, first-year Algebra. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Prerequisite, First-year Mathematics. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

Gas Engine Laboratory.—In connection with a study of the principles of the internal combustion engine in power machinery, this laboratory course is offered for the purpose of acquainting the student with the actual handling of such engines. Practice is given on the various types of gasolene, kerosene, and oil engines. One period, second term. Assistant Professor VAUGHAN.

Elementary Mechanics.—This subject is intended to treat the elementary mechanics problems which arise in connection with machine shop and drafting room practice. Two periods, second term. Professor SATTERFIELD.

English Composition and Rhetoric.—After a review of grammatical principles, especial attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Three periods. Required of second-year students. Mr. PRATT, Mr. WEBBER.

FOUR-YEAR COURSE IN ELECTRICAL ENGINEERING.

The four-year course in Electrical Engineering is planned for those who wish a thorough practical preparation for following this profession. Only the most thorough training in the fundamental laws and principles of electricity and magnetism will suffice as a preparation for this branch of engineering in which the art is advancing so rapidly. This training is given by a careful study of text-books and co-ordinated work in the various laboratories. The department, as will be seen from the equipment described below, is well supplied with dynamos, motors, transformers, and other electrical machines, and with testing instruments and apparatus of all descriptions.

Electrical Engineering Equipment.

The course in Electrical Engineering is accompanied by work in the laboratory and the designing-room. The department occupies the western portions of the basement and of the first floor of Winston Hall. On the first floor are the classrooms, offices, library, draftingroom, and instrument laboratory. The classrooms are well equipped for demonstrating the principles studied in the text-books. The designing-room is suitably furnished for its purpose and the instrument laboratory is supplied with standardizing apparatus and instruments, provided for quickly determining the accuracy of all the apparatus used in actual measurements and also for advanced measurements in electricity and magnetism. This room is well supplied with power, current from single-, two- and three-phase sources being available, as well as direct current from the power-house or storage batteries.

In the basement are located the dynamo laboratory, the photometric laboratory, instrument room, the department's repair shop, and rooms for high-tension apparatus, storage battery, and stores.

The dynamo laboratory is a room 90 x 30 feet. Its equipment consists of direct and alternating current dynamos and motors of practically all types and ranging in size from one to thirty-seven kilowatts, the aggregate capacity being about two hundred kilowatts in machines and seventy-five kilowatts in transformers. Power is supplied to the laboratory by means of three independent circuits running from the College power-house. A full complement of ammeters, voltmeters, wattmeters, phasemeters, tachometers, rheo-

stats, condensers, inductances, and other apparatus used in the study of electrical machines is provided. The equipment is arranged so that power is conveniently supplied to a number of independent stations, at each of which a group of students can conduct an experiment without being affected by the work of other groups.

Power-house.

The College power-house is also available for student instruction. It is a brick building containing an excellent equipment of modern type. This consists of one seventy-five kilowatt, six-hundred volt, three-phase revolving field alternator directly connected to a high-speed engine; two fifty-kilowatt, three-hundred volt, three-phase revolving field alternators, driven by a DeLavel steam turbine, with direct-driven exciter; a ten-kilowatt, direct-connected, direct current generator, a motor-generator exciter set; and a completely equipped switchboard.

The city of Raleigh is unusually well situated for students of Electrical Engineering. The local power company has a fine modernized steam turbine-driven plant which operates in conjunction with the water-power plant at Buckhorn Falls, on the Cape Fear River, from which point the power is transmitted at sixty thousand volts. This company also owns the large plant at Blewetts Falls, from which power is transmitted at one hundred and ten thousand volts. This line crosses the College property, and has an open-air transformer and meter station located within easy reach.

Library.

This department has a small but growing library and takes a number of the leading electrical journals, all of which are at all times available for the students' use.

Physics.

A thorough training in the elements of Physics is necessary as a preparation for entering any engineering profession. The course in Physics is planned with this specific object in view. Instruction in the classroom is accompanied by laboratory courses laid out so as to illustrate the principles taught in the former, and also so as to train the student to observe accurately and to give him considerable facility in the manipulation of scientific instruments. During the first year the subject is presented in an elementary manner. In the second year a more thorough study of general physics is made.

Brief courses in Physics are given for students in Agriculture and Textile Industry and an elementary course is given to students in the short courses in Mechanic and Textile Arts, and Agriculture.

Equipment.

The laboratories and classrooms for the work in Physics are in the basement of Holladay Hall, practically the whole floor being given up to this department. There are two large, well-equipped classrooms with facilities for giving experimental lectures; and there are two large, well-lighted laboratories, one for the first-year course in Physics and the other for advanced physical measurements. Special attention has been paid to the equipment of these laboratories, the object being to enable the student to determine from his actual experience the truth of the principles which he learns in the classroom. There are several smaller laboratories equipped for special work, such as the study of light.

II (d). The Four-year Course in Electrical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Elementary Physics, 280	4	4
Physical Laboratory, 282	1	1
Mechanical Drawing, 230	2	2
Woodwork, 235	2	2
Forge Work, 236	--	2
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Physics, 281	2	2
Physical Laboratory, 283	1	1
Descriptive Geometry, 231	--	2
Mechanical Drawing, 232	--	2
Advanced Algebra, 343	5	--
Trigonometry, 344		
Analytical Geometry, 345	--	5
Inorganic Chemistry, 302	3	3
Inorganic Chemical Laboratory, 303	2	2
Foundry, 237	2	--
Pattern-making, 238	2	--
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Tactics, 391	1	1
Military Drill, 390	3	3
Totals	24	24

Junior Year.

Electrical Engineering, 284	3	3
Electrical Engineering Laboratory, 289	2	2
Steam Engines and Boilers, 241	2	2
Machine-shop Work, 239	1	1
Machine Design, 233	2	2
Mechanics, 250	2	2
Calculus, 346	5	5
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	23	23
Modern Languages, 370, 373	3	3

Senior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Alternating Currents, 286	3	3
Electrical Application, 287	2	2
Electrical Transmission, 288	--	2
Electrical Engineering Laboratory, 291	2	2
Electrical Design, 292	2	2
Applied Mechanics, 251	3	--
Mechanics of Materials, 252	--	2
Steam Engineering Laboratory, 249	1	1
Integral Calculus, 346	3	--
Hydraulics, 216	--	2
Journals, 365	3	--
Elect one subject from the following:		
Classics, 366	--	3
Economics, 367	--	3
Military Drill, 390	3	3
Modern Languages, 371, 374	3	3
Totals	22	22

Subjects of Instruction.

280. Physics.—Introductory course in Physics, planned to give the student a broad view of the field covered by this fundamental science for all engineering work. It includes the study of the fundamental units, the English and Metric systems of measures, definitions of force, work, power, lines of motion, principles of machines, mechanics of fluids, heat, sound, light, electricity and magnetism. Text-book, Milliken & Gale's *A First Course In Physics.* Four periods. Required of Freshmen in Engineering and Chemistry. Associate Professor Heck, Mr. Pritchett.

281. Sophomore Physics.—A more advanced and more thorough course in Physics, arranged particularly to meet the needs of engineering students. Particular attention is paid to Mechanics, fluids, gases, heat, electricity and magnetism. Two periods. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physics 280. Associate Professor Heck, Mr. Pritchett.

282. Physical Laboratory.—In the shops the engineering student handles and works with the materials of construction. In the laboratory he is taught to measure and observe. The course here is arranged to make him familiar through actual observation with physical phenomena and teach him how these are measured and controlled. It includes practice in handling units in the British and Metric systems, measurements, composition and resolution of forces, the lever, the inclined plane, the pendulum, density of materials, and specific gravity, the thermometer, heat and its effect on materials, sound, laws of strings, laws of lenses and mirrors, magnetism and electricity. One period. Required of Freshmen in Engineering and Chemistry. Mr. MARTIN.

283. Sophomore Physical Laboratory.—A more advanced course in physical measurements accompanying classroom instruction in this subject. It includes a study of the theory of measurements upon which all engineering work is based. More care and greater accuracy, and more elaborate reports are required in this course than in the Freshman laboratory. The work is intended not only to impress the truths and principles taught in the classroom but also to give some facility in the use of scientific instruments and training in accurate observation. One period. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physical Laboratory 282. Associate Professor HECK, Mr. PRITCHETT.

284. Direct Current Machinery and Apparatus.—A thorough study is made of the production and utilization of direct currents, beginning with the theory of the magnetic circuit, electromagnetic induction, electrical measurements, storage batteries, dynamos and motors, operation and care of direct current machinery, electrical distribution and lighting. Text-book, Franklin & Esty's *Elements of Electrical Engineering.* Three periods, through the year. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281, 342, 343 and 344. Professor BROWNE.

285. Electrical Engineering.—An introductory course for students in other engineering departments, consisting of the study of the apparatus used in the production, distribution, and utilization of electrical power. Required of Juniors in Mechanical Engineering. Text-book, Timbie's *Elements of Electricity.* Two periods. Prerequisites, Subjects 281, 342, 343 and 344. Professor BROWNE.

286. Alternating Currents and Machinery.—A study of the flow of periodic currents in circuits containing resistance, inductance, and capacity; the construction, operation, and performance of alternating current machinery. Text-book, Franklin & Esty's *Alternating*

Currents. Three periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284, 345, 346. Professor BROWNE.

287. Industrial Applications of Electricity.—A detailed study is made of the many industrial applications of electricity, such as electric traction, the electric drive in mill and factory, electric power stations, industrial electro-chemistry and electro-metallurgy, telegraphy, and telephony. Two periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Professor BROWNE, Assistant Professor MCINTYRE.

288. Electrical Transmission of Power.—A practical study of the problems involved in the transmission of power from the generating station to the consumer; hydro-electric developments; high-tension transmission. Required of Seniors in Electrical Engineering. Text-book, Ferguson's *The Elements of Electrical Transmission.* Two periods, second term. Prerequisites, Subjects 284, 289. Professor BROWNE.

289. Direct Current Laboratory.—This study accompanies that of direct current machinery. It includes use of standardizing apparatus, calibration of instruments, advanced electric and magnetic measurements, and the operation and testing of direct-current dynamos and motors. Text-book, Sever & Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281 and 283. Assistant Professor MCINTYRE.

290. Electrical Engineering Laboratory.—This course accompanies Study 285. Instruction is given in the care and operation of direct and alternating current machinery. Required of Juniors in Mechanical Engineering. One period. Text-book, Sever's *Direct Current Tests.* Prerequisites, Subjects 281, 283. Assistant Professor MCINTYRE.

291. Alternating Current Laboratory.—This study is taken up simultaneously with the study of alternating currents. It includes practice with alternating currents, measurements of inductance and capacity, experimental study of transformers, alternating current generators and motors, advanced methods of testing electrical apparatus, and shop testing. Text-book, Sever & Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Assistant Professor MCINTYRE.

292. Electrical Design.—An introductory course in the designing of electrical apparatus, taking up the design of rheostats and heat-

ing devices, controllers, electromagnets, transformers, direct and alternating current dynamos and motors. Two periods. Required of Seniors in Electrical Engineering. Prerequisite, Subject 284. Professor BROWNE.

COURSE IN CHEMISTRY.

In harmony with the general purposes for which the College was founded, the course in Chemistry is arranged to prepare young men for careers in that department. To this end the training given in general, organic, and analytical chemistry is supplemented by instruction in technical chemical analysis and in applied chemical subjects. The kindred scientific subjects of Biology and Physics are taught, together with the cultural studies included in the other courses.

The chemical laboratories of the North Carolina Department of Agriculture and of the North Carolina Agricultural Experiment Station afford the student an opportunity to keep in touch with the methods of research in this department of agricultural science.

The State Museum is open to the public each day, and among other things contains a very excellent collection of the State's minerals, ores, and building stones.

There are in the city of Raleigh and its vicinity several manufacturing plants to which, through the courtesy of the owners, the students in chemistry, in company with the teaching staff of this department, make visits each year. These include plants for the manufacture of illuminating gas, sulphuric acid, fertilizers, and ice, for the extraction of cotton-seed oil, and for the dyeing of cotton goods.

Chemical Equipment.

The Chemical Department occupies the whole of the second floor of Winston Hall. There are three classrooms, one for about ten students, one for about thirty students, and one for ninety students. The classrooms are well lighted, have very convenient lecture tables, and settees with arm-rests for taking notes.

The laboratory for inorganic chemistry can accommodate three hundred and thirty-six students, the laboratory for qualitative analysis ninety-six students, and for organic chemistry and quantitative analysis about twenty students each. A small laboratory has been set aside for special work. The laboratories are fitted up with conveniently arranged desks and hoods, each of which has the necessary water and gas connections. The balance room is located near the quantitative laboratory.

The department also has a dark room for photographic work, fire-proof rooms for combustion, ample stockrooms, and a preparation room.

The Chemical library, containing an excellent collection of reference books and complete sets of some of the leading chemical journals, occupies a room convenient to the laboratories for the upper classmen.

The members of the instructing staff have offices adjacent to the laboratories.

II (e). The Four-year Course in Chemistry, leading to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Inorganic Chemistry, 300	2	2
Inorganic Chemistry (laboratory), 301	1	1
Physics, 280	4	4
Physical Laboratory, 282	1	1
Botany, Elementary, 320	3	3
Algebra, 340	5	--
Geometry, 341	--	5
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Analytical Chemistry, Qualitative, 304	3	3
Physics, 281	2	2
Physical Laboratory, 283	1	1
Geology, 327	2	--
Physiology, 325	--	3
Advanced Algebra, 343 / Trigonometry, 344	5	-- / --
Analytical Geometry, 345	--	5
German, 370	3	3
Advanced Rhetoric, 362 / Public Speaking, 363	3 / --	3
Military Tactics, 391	1	1
Military Drill, 390	3	3
Totals	23	24

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Analytical Chemistry, Quantitative, 305	4	4
Agricultural Chemistry, 306	3	--
Organic Chemistry, 307	2	2
Organic Chemistry (laboratory), 308	3	3
Bacteriology, 321	--	3
Soils, 331	3	3
German, 371	3	3
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	24	24

Senior Year.

Analytical Chemistry, Quantitative, 309	8	8
Advanced Inorganic Chemistry, 310	1	1
Physical Chemistry, 311	3	3
Physical Chemistry (laboratory), 312	1	1
Bio-Chemistry, 313	2	2
Elect seven periods from the following:		
Journals, 365	3	--
Classics, 366	--	3
German, 372	3	3
Economics, 367	--	3
Microchemical Analysis, 314	1	1
Advanced Bacteriology, 322	3	3
Soils, Advanced, 332	3	--
Feeds, 335	--	3
Fertilizers, 333	--	2
Drawing, 230	2	2
Calculus, 346	5	5
Military Drill, 390	3	3
Other subjects if approved by the Professor of Chemistry.		
Totals	22	22

CHEMISTRY.

300. Inorganic Chemistry.—Hessler & Smith's *Essentials of Chemistry.* The common elements and their principal compounds, together with the fundamental principles of the science, are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. Cox.

301. Inorganic Chemistry.—Laboratory work. Hessler & Smith's *Laboratory Exercises.* Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the classroom are performed by the student. One period. Required of Freshmen. Doctor FREDERICK and Doctor DOBBINS.

302. General Chemistry.—McPherson and Henderson's *General Chemistry.* A study of the non-metallic elements, metals, laws of chemical combination, ionization, electrolysis, neutralization, valence, equilibrium, molecular weights, thermochemistry, etc. Three periods. Required of Sophomores in Engineering. Professor WITHERS, Doctor DOBBINS, and Mr. Cox.

303. General Chemistry.—Laboratory work to accompany Course 302, followed by a brief course in qualitative analysis. McPherson and Henderson's *Exercises in Chemistry.* Two periods. Required of Sophomores in Engineering. Doctor DOBBINS, Mr. Cox, and Doctor FREDERICK.

304. Analytical Chemistry.—W. A. Noyes' *Qualitative Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys, and minerals. Three periods. Required of Sophomores in Chemistry. Doctor MILLER.

305. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis.* Gravimetric and volumetric analysis of pure salts at first and later of substances of agricultural and industrial importance. Four periods. Required of Juniors in Chemistry. Doctor WILLIAMS.

306. Agricultural Chemistry.—Hart & Tottingham's *Agricultural Chemistry.* A study of plants and animals, their nutrition and products from a chemical standpoint. Three periods, first term. Required of Juniors in Chemistry. Professor WITHERS.

307. Organic Chemistry.—Remsen's *Organic Chemistry.* A study of the fundamental principles of organic chemistry and of the most important organic compounds. Two periods. Required of Juniors in Chemistry. Doctor DOBBINS.

308. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual.* A series of experiments illustrating the methods used in the preparation of the principal classes of organic compounds and the fundamental reactions involved in their transformations. Three periods. Required of Juniors in Chemistry. Doctor DOBBINS.

309. Analytical Chemistry.—Quantitative analysis, advanced. A continuation of Course 305. Eight periods. Required of Seniors in Chemistry. Doctor WILLIAMS.

310. Advanced Inorganic Chemistry.—A lecture course in which is discussed the development of the science of chemistry, special attention being given to the periodic law, radio activity, the coördination theory, and the modern trend of chemical thought. One period. Required of Seniors in Chemistry. Doctor MILLER.

311. Physical Chemistry.—Jones's *Introduction to Physical Chemistry.* The fundamental principles of Physical Chemistry are taken up, including the constitution of matter, the gas laws, thermochemistry, photochemistry, electrochemistry, chemical dynamics, and equilibrium, emphasis being laid on the phenomena of solutions. Three periods. Required of Seniors in Chemistry. Doctor FREDERICK.

312. Physical Chemistry.—Laboratory work. Here the student carries out experiments involving molecular weight determinations, lowering of freezing point, elevation of boiling point, conductivity measurements, and other determinations as they are deemed expedient. One period. Required of Seniors in Chemistry. Doctor FREDERICK.

313. Bio-Chemistry.—A study of carbohydrates, fats and proteins. Two periods. Required of Seniors in Chemistry. Professor WITHERS.

314. Microchemical Analysis.—A laboratory course in which the common elements are detected by means of the microscope. The student is also taught to identify such fabrics as silk, wool, linen, cotton, etc., and to analyze alloys, soils, fertilizers, and other commercial products for their constituents. One period. Elective for Seniors in Chemistry. Doctor MILLER.

BOTANY AND BACTERIOLOGY.

320. Elementary Botany.—Recitation, laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi. The student's knowledge is made his own through laboratory work and simple independ-

ent investigations. Three periods, first and second terms. Required of Freshmen in Chemistry. Professor FULTON, Mr. YOUNG.

321. Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation and disinfection, and to the relation of bacteria to disease in plants and animals, and to agricultural practice. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Three periods, second term. Required of Juniors in Chemistry. Mr. COOPER.

322. Bacteriology (Advanced).—A course designed to extend knowledge in special fields and to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil or air. The course is flexible and will be made to fit the requirements of those students electing it. Three periods. Elective for Seniors in Chemistry. Prerequisite, Botany 321. Professor FULTON, Mr. COOPER.

PHYSIOLOGY.

325. Animal Physiology.—Mounted skeletons of man, of the horse, and of the cow will be used in a brief study of elementary anatomy of man and domestic animals. This will be followed by a comparative study of some of the functions of the various systems and organs of the body, such as the skeleton, muscles, nerves, organs of special sense, digestion, circulation, respiration, skin, etc. The subject will be covered by lectures, recitations, demonstrations and laboratory exercises. Three periods, second term. Required of Sophomores in Chemistry. Doctor ROBERTS.

GEOLOGY.

327. Geology.—Introductory course in Geology. A brief course treating of soil, the action of the various agencies on the land, building up of land by water, and the study of the principal constituents of the soil. Two hours, first term. Required of Sophomores in Chemistry. Doctor WILLIAMS and Mr. Cox.

SOILS.

331. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, drainage, effect of mulches, temperature and weight, and the modification of these

characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the United States and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of Juniors. Prerequisites, Chemistry 300, 301, and Physics 280. Professor SHERWIN.

332. Advanced Soils.—In this course the student will be guided in the study of any line of soils work he may choose, either along practical or scientific lines. Laboratory work will be given. Considerable reference will be made to Experiment Station literature, with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. Three periods, first term. Prerequisite, Soils 331. Elective for Seniors in Chemistry. Professor SHERWIN.

333. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers, as shown by their productive capacity. Fertilization of all the principal crops of the State and of any special crops in which the class is interested will be discussed, considering amount, method, and time of application, as well as the most economical formula to use. Two periods, second term. Elective for Seniors in Chemistry. Prerequisite, Soils 331. Professor SHERWIN.

STOCK FEEDING.

335. Stock Feeding.—A study of the compositions of feeds, and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles, so that he can compound suitable rations for the different classes of live stock. Special emphasis will be laid upon practical problems in feeding. Three periods, second term. Elective for Seniors in Chemistry. Professor MCNUTT.

MATHEMATICS.

While the subject of mathematics is presented in such a manner that the student obtains a thorough working knowledge of those principles which he needs in his Engineering Course, yet it is not the purpose to subordinate the general theory of mathematics to

the practical side. The work consists of recitations, written exercises, and lectures, with frequent oral and written quizzes.

340. Algebra.—Wells' *New Higher Algebra.* This course begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

341. Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Required of Freshmen. Prerequisites, entrance requirements and a term standing of 50 per cent or more on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

343. Advanced Algebra.—Wells' *New Higher Algebra.* The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 340 and 341. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

344. Trigonometry.—Wells' *Plane and Spherical Trigonometry.* Plane Trigonometry. Definitions of the trigonometric functions; derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 340 and 341. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

345. Analytical Geometry.—Wentworth's *Analytical Geometry.* Loci of equations, straight line, circle, parabola, ellipse, hyperbola, a discussion of the general equation of the second degree, higher plane curves, and geometry of three dimensions. Required of Sophomores, five periods, second term. Prerequisite, 344. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. TUCKER.

346. Differential and Integral Calculus.—Osborne's *Elements of Calculus.* A thorough treatment of the fundamental principles and derivations of formulæ; applications to various problems, such as expansion into series, evaluation and indeterminate forms, maxima and minima, radius of curvature, lengths of curves, areas, volumes, etc. Five periods, February 15 to end of term; required of Juniors in Engineering. Three periods, first term; required of Seniors in

Engineering. Elective for Seniors in Chemistry. Prerequisites for differential calculus, 343 and 345; for integral calculus, differential calculus. Professor YATES, Mr. HARRELSON, Mr. TUCKER.

ENGLISH.

360. English Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Mr. PRATT, Mr. WEBBER.

361. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely on class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. WEBBER.

362. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first term, and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

363. Public Speaking.—The principles governing the preparation and delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

364. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods throughout the year. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

365. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Three periods, first term. Required of Seniors in Civil and Electrical

Engineering. Elective for Seniors in Mechanical Engineering and Chemistry. Professor HARRISON.

366. Classics.—The lives and works of the greatest scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Three periods, second term. Elective for Seniors. Professor HARRISON.

ECONOMICS.

367. Introductory Economics.—This course is designed to train the student in the elementary principles of economics. A brief survey will be given to the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts, and the governmental regulation of business. Three periods, second term. Open to Seniors. Professor CAMP.

MODERN LANGUAGES.

The purpose of the work in this department is to enable the student to read and become acquainted with German, French and Spanish scientific literature. Grammar is taught only secondarily and as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years' work of German is required of students taking the Chemical course, and it is recommended that the students of this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

370. Beginner's German.—Grammar, composition and translation. Bacon's *German Grammar.* Reader to be selected. Required of Sophomores in Chemistry course. Elective for Juniors of other courses. Both terms, three hours. Assistant Professor HINKLE.

371. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical German the second term. Gore's German Science Reader and Wallentin's *Grundzüge der Naturlehre.* Required of Junior Chemists. Elective for Seniors of other courses. Both terms, three hours. Assistant Professor HINKLE.

372. Advanced Scientific German.—Chemical German forms the basis of the work. Text to be selected. Senior elective. Both terms, three hours. Assistant Professor HINKLE.

373. Beginner's French.—Grammar, composition and translation

the first term. Introductory scientific French the second term. Giese's *Graded French Method.* Bowen's *First Scientific French Reader.* Junior elective. Both terms, three hours. Assistant Professor HINKLE.

374. Beginner's Spanish.—Grammar, composition and translation. Hills and Ford's *Spanish Grammar.* Hills' *Spanish Tales for Beginners.* Senior elective. Both terms, three hours. Assistant Professor HINKLE.

MILITARY SCIENCE.

390. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may take either the drill or three extra hours in some other subject instead. Lieutenant SPURGIN and Cadet Officers of the Battalion.

391. Tactics.—Theoretical instruction in infantry drill regulations, field-service regulations, map reading, and small-arms firing manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

III. TEXTILE COURSES.

III (a.) The Four-year Course in Textile Industry.

THE TEXTILE DEPARTMENT.

The Textile Department, which is a fully equipped Textile School, contains all the necessary machinery for instruction in manufacturing cotton yarns and fabrics from the bale to the finished product. The student is taught the theory of cotton spinning, weaving, designing and dyeing. In connection with the theory, he learns the practical operation of cotton machinery used in carrying on the different processes. Further, he learns such essential practical details as enable him to adjust and fix the machinery so as to produce the proper results. As a result of this training, each student produces for himself cotton yarns of different numbers, and cotton fabrics of different kinds, from his own designs and choice of colors.

TEXTILE INSTRUCTION.

In this department two courses of instruction are offered, the four-year course, leading to the degree of Bachelor of Engineering, and the two-year course in carding and spinning, weaving, designing, and dyeing.

Four-year Course.

The four-year course offers complete facilities for full instruction in all branches of cotton-mill work. Practical training in textile work begins in the Freshman year and forms a part of the work in each of the following years. The combination of practical with theoretical training is begun in the Sophomore year, and continues in the Junior and Senior years. The theoretical work is directly related to the practical work going on, and this combination offers the best means for studying cotton-mill work and its operations.

Two-year Course.

The two-year course is offered to students who cannot spend the time required for the four-year course, or who have had practical experience in the mill and wish to avail themselves of our facilities for giving special instruction in textile work.

Textile Building and Equipment.

The textile building is located on the west campus. It is a two-story brick building one hundred and fifty by seventy-five feet, with a basement. Throughout, its construction is similar to that of a cotton mill, being an illustration of standard construction in this class of buildings. The basement is fitted up with a laboratory and classroom for instruction in dyeing and with dyeing machinery. On the first floor are located the hand and power looms and the necessary warp-preparation and finishing machinery. The carding and spinning machinery is located on the second floor. Electricity is used as a motive power, the machinery of each department in the building being driven by a separate motor. The machinery equipment consists of the latest types of cotton-mill machinery, manufactured by American builders.

Power and Power Transmission.

One 25-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving carding and spinning machinery.

One 15-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving weaving machinery.

One 10-horsepower 3-phase 550-volt motor, made by Fairbanks-Morse Company, for driving dyeing machinery.

Pulleys, shafting, hangers, and couplings, made by Jones & Laughlin Company, Ltd., Pittsburg, Pa.

Carding Department.

Opening Room.—One cotton gin, made by Continental Gin Company, Birmingham, Ala. One thread extractor, made by Kitson Machine Company, Lowell, Mass. One combination opener and breaker lapper, made by Kitson Machine Company, Lowell, Mass. One 40-inch single beater finisher lapper, with patent carding beater, made by Kitson Machine Company, Lowell, Mass.

Carding Room.—One 40-inch revolving flat card, 110 flats, with coiler, made by Whitin Machine Works, Whitinsville, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Potter & Johnston Company, Pawtucket, R. I. One single railway head, with coiler, leather rolls, made by Whitin Machine Works, Whitinsville, Mass. One drawing frame, four deliveries, metallic rolls, made by Whitin Machine Works, Whitinsville, Mass. Two drawing frames, four deliveries, leather rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I. One sliver lap machine, one ribbon lap machine, and one six-head combing machine, made by Whitin Machine Works, Whitinsville, Mass. One 36-spindle slubber

for 11 by 5½-inch bobbin, with ball-bearing top rolls; one 48-spindle intermediate roving frame for 9 by 4½-inch bobbin; one 64-spindle fine roving frame for 7 by 3½-inch bobbin, with ball-bearing top rolls; one 80-spindle jack roving frame for 6 by 2½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I.

Spinning Department.

Spinning Room.—One 120-spindle spinning fram for warp, tape drive, with combination build; one 74-spindle spinning frame for filling, made by Whitin Machine Works, Whitinsville, Mass. One 180-spindle spinning frame for warp, tape drive, with combination build; one 180-spindle spinning frame, tape drive, with combination build, made by Fales & Jenks Machine Company, Pawtucket, R. I.

Spooling, Twisting, and Winding.—One 100-spindle spooler, made by Whitin Machine Works, Whitinsville, Mass. One 96-spindle wet twister, made by Whitin Machine Works, Whitinsville, Mass. One 50-spindle reel, one-half live, one-half dead spindles, made by D. A. Tompkins Company, Charlotte, N. C. One 24-spindle skein winder, made by Oswald Lever Company, Philadelphia, Pa. One 6-spindle universal winding machine, made by Universal Winding Company, Boston, Mass. One section warper, 400 ends, made by T. C. Entwistle Company, Lowell, Mass.

Weaving Department.

Warp Preparation.—One 12-spindle bobbin-winding machine, made by Jacob K. Altemus, Philadelphia, Pa. One 40-spindle bobbin-winding machine, made by Universal Winding Company, Boston, Mass. One beaming machine, made by Lewiston Machine Company, Lewiston, Me. One beaming machine, complete, made by the T. C. Entwistle Company, Lowell, Mass. One slasher, made by Cohoes Machine Company, Cohoes, N. Y.

Looms.—Six sheeting looms, two 4 by 1 box gingham looms, one 16-harness dobby, made by Whitin Machine Works, Whitinsville, Mass. Two sheeting looms, one 12-harness dobby loom, 2 by 1 box, with leno motion, one 25-harness dobby loom, 4 by 1 box, one terry towel loom, 3 by 1 box, 16-harness dobby, one 4 by 4 box Gem loom, 20-harness head motion, one 4 by 1 box loom with 400-hook jacquard, one 4 by 4 box loom with 400-hook jacquard, one 4 by 4 box loom with 1248-hook jacquard, one 4 by 1 box loom with Halton table damask jacquard, one carpet jacquard, made by Crompton and Knowles Loom Works, Worcester, Mass. One 25-harness dobby loom, made by Saco-Lowell Shops, Lowell, Mass. One bag loom, made by Lewiston Machine Co., Lewiston, Maine. One Stafford

automatic sheeting loom, one Stafford automatic 15-harness dobby towel loom, made by the Stafford Company, Readsville, Mass.

Finishing.—One No. 25 railway sewing and rolling machine, one inspecting machine, one brushing machine, one No. 3 calendar rolling machine.

Dyeing Department.

The Dyeing Department is located in the basement of the Textile Building, and consists of an experimental dyeing laboratory with desk room sufficient for thirty students, a lecture-room, a stock-room, an office, and a room seventy by fifty feet, which is fitted up to give instruction in practical dye-house work.

The dyeing laboratory is well fitted up with appropriate work tables and all the necessary apparatus for experimental dyeing, dye-testing, color-matching, and the testing of dyed samples by light, acids, alkalis, etc., as well as for carrying out the various chemical operations necessary in dyeing. The dye-house is equipped with the proper dyeing machinery needed in the dyeing of large quantities of material, and the giving of practical instruction in boiling out, bleaching, and dyeing of raw stock, cops, skeins, warps, and piece goods.

The department has a large collection of dye-stuffs and color cards. Through the kindness of the various dyestuff dealers and manufacturers, the department is regularly supplied with all new dyestuffs and color cards as soon as they are put on the market, thus affording the student ample opportunity to become familiar with the latest methods and products for commercial work. The department is indebted to the following firms for donations of dye-stuffs and chemicals:

Farbwerke-Hoechst Company, New York.
Badische Company, New York.
Farbenfabriken of Elberfeld Company, New York.
American Dyewood Company, New York.
Berlin Aniline Works, New York.
Cassella & Co., New York.
Kalle & Co., New York.
Geisenheimer & Co., New York.

Dye-house Equipment.—Seven dye vats; one 10-gallon steam-jacketed copper kettle; one steam aging box; one Franklin dyeing machine; one 5-gallon steam-jacketed copper kettle; one Tolhurst Machine Works hydro-extractor; one Schaum & Uhlinger hydro-extractor; one Mather & Platt cloth printing machine.

A full equipment of analytical balances and other necessary apparatus for experimental work is provided.

III (a). The Four-year Course in Textile Industry, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.*	
	1st Term.	2d Term.
Carding and Spinning, 400†	1	1
Weaving, 401	2	2
Mechanical Drawing, 430	2	2
Shop Lectures, 431	2	--
Woodwork, 432	2	2
Forge Work, 433	--	2
Algebra, 441 / Geometry, 442	5	5
Inorganic Chemistry, 420	2	2
Inorganic Chemistry (laboratory), 421	1	1
Composition and Rhetoric, 450	3	--
American Literature, 451	--	3
Military Drill, 480	3	3
Totals	23	23

Sophomore Year.

Carding and Spinning, 400	2	3
Weaving, 401	2	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Elementary Physics, 440	2	2
Analytical Chemistry (qualitative), 422	3	3
Drawing, 430	--	2
Advanced Algebra‡ / Trigonometry, 445	5	
Advanced Rhetoric, 452	3	3
Public Speaking, 453	--	
Military Drill, 480	3	3
Military Tactics, 481	1	1
Totals	23	22

*The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

‡First five weeks.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	4	4
Weaving, 401	3	3
Textile Designing, 402	3	2
Cloth Analysis, 403	--	1
Dyeing, 410	2	2
Dyeing (laboratory), 411	3	3
Steam Engines and Boilers, 435	2	2
English Literature, 454	3	3
Military Drill, 480	3	3
Totals	23	23
Modern Languages, 460, 463	3	3

Senior Year.

Carding and Spinning, 400	4	4
Weaving, 401	4	4
Textile Designing, 402	3	3
Cloth Analysis, 403	1	1
Dyeing, 410	1	1
Dyeing (laboratory), 411	3	3
Mill Accounting and Mill Costs, 404	1	1
Machine-shop Work, 434	2	2
Elect three periods from the following:		
Journals, 455	3	--
Classics, 456	--	3
Economics, 457	--	3
Military Drill, 480	3	3
Modern Languages, 461, 464	3	3
Totals	22	22

Subjects of Instruction.

400. Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: Classifying the plant, its growth, varieties, ginning, baling and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers, railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts, speed of parts, production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: *Cotton Mill Processes and Calculations*, by Tompkins; *Cotton Spinning*, by Nasmith. Required of Freshmen, Sophomores, Juniors, and Seniors. Professor NELSON and Mr. STEED.

401. Weaving.—Lectures and practice in warp preparation, operating and fixing looms, cloth-finishing machinery. Warp preparation; pin frame warper; section warper; beam warper; construction of beam warper, stop motion, measuring motion, creel; pattern warp making; long and short chain beamers. Slashing: Steam cylinder slasher; hot-air slasher; construction of slasher, creel, cylinder, immersion roll, squeeze rolls, drying fan, separator rolls, winding yarn on beam, cone drive, slow motion, measuring and cut marking motion. Sizing: Construction of size kettle; size mixing and boiling; division of sizing ingredients; value of ingredients; sizing recipes for light, medium, and heavy sizing. Loom-mounting: Reeds and harnesses; drawing in and putting warps in loom. Looms: Hand looms and power looms; construction of plain loom; principal movements in weaving; let-off and take-up motions; filling stop motion; warp stop motion. Cams and their construction. Magazine looms, construction and advantages. Drop box looms: Chain building for box looms; changing boxes to have easy running looms; construction and value of multipliers; timing and fixing box motions. Pick and pick-looms. Box-chain and multiplier-chain building; arrangement of colors in boxes to give easy-running loom. Ball and shoe-pick motion. Construction and fixing of head motion. Dobby, single and double index; construction and fixing of dobby; extra appliances necessary for weaving leno, towel, and other pile fabrics. Value of easers; half motion; and jumper attachment for leno. Springs and spring-boxes. Pattern chain building. Jacquard: Single and double lift; construction and tie-up. Weave-room calculations, speed and production

calculations, relative speed of looms, counts of cotton harness. Finishing: Inspection of cloth; singeing and brushing; calendering, tentering; folding and packing for the market. Equipment necessary for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: *Weaving, Plain and Fancy*, by Nelson. Required of Freshmen, Sophomores, Juniors, and Seniors in the Four-year Course, and of first and second year students in the Short Course. Professor NELSON, Mr. STEED, Mr. HALSTEAD.

402. Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves: Plain, twill, satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves, plain and fancy basket weaves, warp and filling rib weaves. Broken twills, curved twills, corkscrew twills, entwining twills. Granite weaves, satin shading. Combination of weaves; figured weaving on plain ground. Satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno, honeycomb weaves. Bedford cords and combination with other weaves. Wave designs, pointed twills, diamond effects. Plain and fancy piques. Double plain, figured double plain. Double cloths. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp; cloths ornamented with extra filling. Cotton velvet. Corduroy. Matelasse, leno weaves with one, two, and more sets of doups. Principles of working both top and bottom doups. Combination of plain and fancy weaves with leno. Methods of obtaining leno patterns. Jacquards. Distribution and setting out of figures for geometrical and floral effects. Distributing figures to prevent lines. Areas of patterns. Preparation of sketches. Transfer of sketches to design paper. Painting in the design with different weaves according to sketch. Shading the patterns. Card cutting and lacing. Required of Sophomores, Juniors and Seniors. Professor NELSON, Mr. STEED, Mr. HALSTEAD.

403. Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile cal-

culations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of Sophomores, Juniors, Seniors. Professor NELSON, Mr. STEED, Mr. HALSTEAD.

404. Mill Accounting and Cost Finding.—The general fundamental principles of the various systems of cost-finding as applicable to the different classes of manufactured products are carefully explained, as well as questions of commissions, discounts, depreciation, inventories, distribution of expenses, etc. As a clear understanding of accounting is necessary for intelligent cost-finding, the method of keeping accounts is studied in detail. The general idea is to impress on the student the relative cost of production for any class of manufactured product and to show how the different processes of manufacturing influence cost. One period, first and second terms. Required of Seniors. Mr. HALSTEAD.

DYEING COURSE.

This course is especially for those who wish to engage in any branch of Textile Chemistry, Dyeing, Bleaching, Finishing, or in the manufacture or sale of dyestuffs and chemicals used in the textile industry, and is designed to give a scientific technical education to those who desire to embrace these branches of industrial technology.

Dyeing as an art has long been practiced, but with the introduction of scientific methods it is rapidly developing and assuming a position in the front rank of applied sciences.

As the textile industries of the State increase, the need of young men who have been trained in the principles as well as the practice of the different factory operations becomes apparent. In the course in dyeing the student is taught the different practical methods of the dye-house; the chemistry of the dyestuffs, some of each class of which he actually makes; the chemical changes brought about by mordants, assistants, etc. He also learns color matching, dye testing, and the methods for the analysis of the different chemicals used in the dye-house. He carries on the study of carding, spinning, weaving, designing, cloth analysis, etc., to the end of the Sophomore year, with the other textile students, and with them devotes attention to shop-work, drawing, engines, boilers, etc., together with such general studies as English, Mathematics, Physics, and General Chemistry, which are required in all Four-year Courses.

III (b). The Four-year Course in Dyeing, leading to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	1	1
Weaving, 401	2	2
Mechanical Drawing, 430	2	2
Shop Lectures, 431	2	--
Woodwork, 432	2	2
Forge Work, 433	--	2
Algebra, 441	5	5
Geometry, 442	--	
Inorganic Chemistry, 420	2	2
Inorganic Chemistry (laboratory), 421	1	1
Composition and Rhetoric, 450	3	--
American Literature, 451	--	3
Military Drill, 480	3	3
Totals	23	23

Sophomore Year.

Carding and Spinning, 400	2	3
Weaving, 401	2	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Elementary Physics, 440	2	2
Analytical Chemistry (qualitative), 422	3	3
Drawing	--	2
Advanced Algebra, 444 Trigonometry, 445	5	--
Advanced Rhetoric, 452	3	3
Public Speaking, 453	--	
Military Drill, 480	3	3
Military Tactics, 481	1	1
Totals	23	22

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Dyeing, 410	2	2
Dyeing (laboratory), 411	3	3
Organic Chemistry, 424	2	2
Organic Chemistry, Laboratory, 425	3	3
Analytical Chemistry, Quantitative, 426	4	4
English Literature, 454	3	3
German 460	3	3
Military Drill, 480	3	3
Totals	23	23

Senior Year.

Dyeing, 410	3	3
Dyeing (laboratory), 411	2	2
Analytical Chemistry, 426	8	8
German, 461	3	3
Elect six periods from the following:		
Journals, 455	3	--
Classics, 456	--	3
Economics, 457	--	3
Military Drill, 480	3	3
Totals	22	22

Subjects of Instruction.

410. Dyeing.—With the microscope and other testing apparatus the student makes a careful study of the various fibres used in the textile industry. He also studies the chemical and physical properties of these fibres, and the action of acids, alkalis, heat, moisture, and the various other agencies to which fibres are liable to be subjected. He next takes up the study of the fundamental principles which underlie the arts of bleaching and dyeing, such as the boiling out and bleaching of cotton, and the chemical reactions involving each step; the adaptability of water for bleaching and dyeing, followed by the theories of dyeing; substantive dyestuffs and their application to cotton; after-treatment of direct dyestuffs, including

diazotising and developing and the topping with basic dyestuffs; the application to cotton of basic dyestuffs, acid dyestuffs, mordant dyestuffs, including a study of the various mordants and their fixation with metallic salts; dyeing with sulphur dyestuffs, indanthrenes, indigo, natural and artificial, aniline black, turkey red, and the insoluble azo colors developed on the fiber; the methods of bleaching and dyeing of linen, jute, ramie, and other vegetable fibers; the scouring and bleaching of wool; the carbonization and chlorination of wool; the application of basic, acid, chromo, eosin, and direct colors to wool; dyeing wool with logwood, fustic, and other natural dyewoods; methods of the making and dyeing of artificial silk; the boiling off, bleaching and dyeing of natural silk; study of the chemical and physical changes which take place during mercerization; also the methods of dyeing mercerized goods; the use of the various kinds of machines used in bleaching and dyeing; the dyeing of raw-stock, skeins, cops, warps, piece goods, hosiery, underwear, and unions; the science of color-mixing; color-matching on textiles; the use of the tintometer and colorimeter; calico printing, including the various methods of preparing the various pastes, thickening agents, mordants and assistants used in printing; quantitative analysis of mixed yarns, and fabrics composed of cotton, wool, and silk; the testing of dyestuffs for their shade, tinctorial power, and leveling properties; comparative dye trials to determine money value; testing for mixtures; the reactions of acids, alkalis, and reducing agents on several samples taken from the different classes of dyestuffs.

The course of lectures, as outlined above, will include the consideration of many difficult problems that arise in the dye-house, with especial reference to the dyeing, mercerizing, and finishing of cotton yarns and pieces. Required of Juniors and Seniors in Textile Industry. Mr. HALSTEAD.

411. Dyeing Laboratory.—A series of experiments is performed which covers all the subjects taken up in the lecture course, and includes a large amount of work done in the laboratory and dye-house. Special stress is put on the matching of colors and the dyeing of sulphur and indanthrene dyestuffs. Each student is required to bleach and dye a large number of samples of yarn and cloth on a small scale, and is required to mount specimens of his work in a pattern book. At the discretion of the instructor in charge, the class bleaches and dyes larger quantities of raw-stock, cloth and yarn in the dye-house, as well as prints samples on the laboratory printing machine. This work will be supplemented by visits to the mills which do dyeing in the city of Raleigh. Required of Juniors and Seniors in Textile Industry. Mr. HALSTEAD.

CHEMISTRY.

420. Inorganic Chemistry.—Hessler and Smith's *Essentials of Chemistry*. The common elements and their principal compounds, together with some of the fundamental principles of the science are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. Cox.

421. Inorganic Chemistry.—Laboratory work. Hessler and Smith's *Laboratory Exercises*. Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the class room are performed by the student. One period. Required of Freshmen. Doctor FREDERICK, Doctor DOBBINS, and Mr. Cox.

422. Analytical Chemistry.—W. A. Noyes' *Qualitative Analysis*. A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys, and minerals. Three periods. Required of Sophomores. Doctor MILLER.

423. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis*. Gravimetric and volumetric analysis. Special attention is given to the determination of elements in substances of special interest to textile students. Four periods. Required of Juniors in Dyeing. Doctor WILLIAMS.

424. Organic Chemistry.—Remsen's *Organic Chemistry*. A study of the fundamental principles of organic chemistry and of the most important organic compounds. Two periods. Required of Juniors in Dyeing. Doctor DOBBINS.

425. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual*. A series of experiments illustrating the methods used in the preparation of the principal classes of organic compounds and the fundamental reactions involved in these transformations. Three periods. Required of Juniors in Dyeing. Doctor DOBBINS.

426. Analytical Chemistry.—Quantitative Analysis, advanced. A continuation of Course 423. Eight periods. Required of Seniors in Dyeing. Doctor WILLIAMS.

MECHANICAL ENGINEERING.*

430. Mechanical Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a ma-

*For further information, see Course in Mechanical Engineering.

chine; elementary principles of descriptive geometry; cylinders, cones, and prisms; intersection and development of surfaces; miscellaneous problems. Two periods. Required of Freshmen. Mr. RICHARDSON.

431. Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general, labor-saving devices, etc. Two periods, first term. Required of Freshmen. Professor SATTERFIELD and assistants.

432. Woodwork.—Use of bench tools; working from drawings, lining, sawing, planing; practice in making simple exercises in woodturning. Two periods. Required of Freshmen. Mr. WHEELER.

433. Forge Work.—Exercises in working with iron, welding; use and care of forge tools and fires. Two periods, second term. Required of Freshmen. Mr. NICHOLS.

434. Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper work. Two periods. Required of Textile Seniors. Mr. PARK.

435. Steam Engines and Boilers.—A study of the structural details of modern steam engines; the slide valve, both in its simple form and when used in combination with independent cut-off valves; link motion and other reversing gears; and the Zeuner diagram. Attention is given to the effect of the reciprocating parts and to inertia and tangential pressures; the class also studies the steam-engine indicator, indicator rigging, and steam distribution as disclosed by the indicator.

The various forms of steam boilers are studied, and the methods employed in their construction are noted. The following subjects are studied in detail: number and size of tubes and flues, the thickness of plates, strength of different styles of riveting, kinds of bracing, amount of grate and heating surface, different kinds of steam and water gages, safety valves and injectors; the causes and methods of preventing foaming, incrustation, and corrosion; the manner of setting boilers, and of operating them with safety and economy; feed-water heaters; mechanical stokers; smoke-consumers and chimneys. Two periods. Required of Juniors in Textile Industry. Mr. PARK.

PHYSICS.*

440. Elementary Physics.—In this course special stress is laid upon the subjects of mechanics, liquids, gases, and heat. It includes the study of the fundamental units, British and metric standard measures, definitions of force, work and power, laws of motion, principles of machines, mechanics of fluids, gases, and heat, and brief introductions to the study of sound and light. Two periods. Required of Sophomores. Assistant Professor McIntyre.

MATHEMATICS.

441. Algebra.—Wells' *New Higher Algebra.* Begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutation, combinations and continued fractions. At the beginning of the term a review is usually given on involution, evolution, theory of exponents, and radicals. Five periods, first term; five periods, second term to February 15. Required of Freshment. Prerequisites: For first term, entrance requirements; for second term, the work of the first term, or, in case of failure, a term standing of 60 per cent or more, and a final examination grade of at least 40 per cent, on the work of the first term. Professor Yates, Mr. Harrelson, Mr. Scarborough, Mr. Jeter, Mr. Rickard.

442. Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry.* A complete course in Plane Geometry, including numerous original exercises. Second term. Five periods, from February 15 to end of term. Required of Freshmen. Prerequisite, entrance requirements. Mr. Harrelson, Mr. Scarborough, Mr. Jeter, Mr. Rickard.

444. Advanced Algebra.—Wells' *Higher Algebra.* The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 441 and 442. Professor Yates, Mr. Harrelson, Mr. Scarborough, Mr. Jeter.

445. Trigonometry.—Wells' *Plane and Spherical Trigonometry.* Plane Trigonometry. Definitions of the trigonometric functions; derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems.

*For further information, see Course in Electrical Engineering.

Required of Sophomores. Four periods, first term. Prerequisites, 441 and 442. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

ENGLISH.

450. English Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Mr. PRATT, Mr. WEBBER.

451. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. WEBBER.

452. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

453. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

454. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods through the year. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

455. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Three periods, first term. Open to Seniors. Professor HARRISON.

456. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Three periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

457. Introductory Economics.—This course is designed to train the student in the elementary principles of Economics. A brief survey will be given to the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts, and government regulation of business. Three periods, second term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The purpose of the work in this department is to enable the student to read and become acquainted with German, French and Spanish scientific literature. Grammar is taught only secondarily and as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years' work in German is required of students taking the Chemical course, and it is recommended that the students of this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

460. Beginner's German.—Grammar, composition and translation. Bacon's *German Grammar.* Reader to be selected. Elective for Textile Juniors. Required of Juniors in Dyeing. Both terms, three hours. Assistant Professor HINKLE.

461. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical German the second term. Gore's *German Science Reader* and Wallentin's *Grundzüge der Naturlehre.* Elective for Textile Seniors. Required of Seniors in Dyeing. Both terms, three hours. Assistant Professor HINKLE.

463. Beginner's French.—Grammar, composition, and translation the first term. Introductory scientific French the second term. Giese's *Graded French Method.* Bowen's *First Scientific French Reader.* Junior elective. Both terms, three hours. Assistant Professor HINKLE.

464. Beginner's Spanish.—Grammar, composition, and translation. Hills and Ford's *Spanish Grammar.* Hills' *Spanish Tales for Beginners.* Senior elective. Both terms, three hours. Assistant Professor HINKLE.

MILITARY SCIENCE.

480. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company and battalion; ceremonies, including inspection, parade, review and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

481. Tactics.—Theoretical instruction in infantry drill regulations, field-service regulations, map reading, and small-arms firing manual. One period a week. Required of Sophomores. Lieutenant SPURGIN.

TWO-YEAR COURSE IN TEXTILE INDUSTRY.

The two-year course is offered to students who cannot spend the time required for the four-year course, or who have had practical experience in the mill and wish to avail themselves of our facilities for giving instruction in textile work.

III (c). The Two-year Course in Textile Industry.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning	2	2
Weaving	3	3
Textile Designing	2	1
Cloth Analysis	--	1
Mechanical Drawing	2	2
Shop Lectures	2	--
Forge Work	--	2
Algebra	5	5
Plane Geometry	--	
English	3	3
Military Drill	3	3
Totals	22	22

Second Year.

Carding and Spinning	5	5
Weaving	4	4
Textile Designing	2	1
Cloth Analysis	--	1
Dyeing	3	3
Machine-shop Work	2	2
English	3	3
Military Drill	3	3
Totals	22	22

DESCRIPTION OF SUBJECTS.

Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: classifying the plant; its growth; varieties; ginning, baling, and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers; railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts; speed of parts; production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: *Cotton Mill Processes and Calculations*, by Tompkins; *Cotton Spinning*, by Nasmith. Required of first and second year students. Professor NELSON and Mr. STEED.

Weaving.—Lectures on construction of plain, twill, sateen, gingham, pick and pick looms are given; also on construction of dobbies and jacquards.

Lectures begin with the construction of plain loom, first taking up the principal movements in weaving, then the various secondary or auxiliary movements, and the relation and timing of one movement to another. Additional motions and parts required to be added to a plain loom in order to weave twill and sateen cloths. Magazine looms; construction and advantages. Drop box looms; construction of the various motions; arranging colors in boxes; methods of building box chains. Dobby: construction of single and double index; setting, and starting up dobby on loom; fixing dobby. Pick and pick looms: construction of loom; construction of head motion; building box chains to have easy-running loom. Jacquard: single and double lift; construction and tie-up. Weave-room calculations for speed and production; counts of reed and cotton harness. Finishing cotton fabrics. Necessary equipment for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: *Weaving, Plain and Fancy*, by Nelson. Required of first and second year students. Professor NELSON, Mr. STEED, Mr. HALSTEAD.

Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves; plain; twill; satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves; plain and fancy basket weaves; warp and filling rib weaves. Broken twills; curved twills; corkscrew twills; entwining twills. Granite weaves; satin shading. Combina-

tion of weaves; figured weaving on plain ground. Fancy satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno; honeycomb weaves. Bedford cords and combination with other weaves. Wave design; pointed twills; diamond effects. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp. Cloths ornamented with extra filling. Combination of plain and fancy weaves. Practical application of weaves to fabrics. Advanced designs. Required of first and second year students. Professor NELSON, Mr. STEED, Mr. HALSTEAD.

Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of first and second year students. Professor NELSON, Mr. STEED, Mr. HALSTEAD.

DRAWING AND SHOP WORK.

Mechanical Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine. Elementary principles of descriptive geometry; cylinders, cones, and prisms; intersection and development of surfaces; miscellaneous problems. Two periods. Required of first-year students. Mr. BRIGGS.

Forge Work.—Exercises in working with iron, welding; use and care of forge tools and fires. Two periods, second term. Required of first-year students. Mr. WHEELER.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper work. Two periods. Required of second-year students. Mr. PARK.

MATHEMATICS.

Algebra.—Wells' *New Higher Algebra.* A thorough treatment of the fundamental conceptions and operations of Elementary Algebra, with special attention to factoring, fractions, simple equations, simultaneous equations and problem solving, involution, evolution, theory of exponents, and radicals. Five periods, first term; five periods, second term to March 15. Required of first-year students. Mr. HARRELSON, Mr. JETER, Mr. RICKARD.

Plane Geometry.—This course begins the subject and completes the first three books, special attention being given to original exercises. Five periods, March 15 to the end of second term. Mr. HARRELSON, Mr. JETER, Mr. RICKARD.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company and battalion; ceremonies, including inspection, parade, review and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

ENGLISH.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Three hours a week. Required of first-year students. Mr. WEBBER.

Additional Subjects in the Second Year.

Dyeing.—The object of this course is to give the student a sound practical knowledge of the fundamental principles which underlie the arts of bleaching, dyeing, mercerizing, etc., cotton yarns and fabrics. The manipulation of the various machines used in bleaching, dyeing, and mercerizing is carefully explained. The physical and chemical properties of the material to be dyed receive first consideration, followed by a study of the adaptability of water for bleaching, dyeing, mordanting, etc. The practical application of the dyestuffs themselves is treated in the most thorough and detailed manner, *e. g.*, the substantive dyestuffs dyed direct, diazotised and developed, after-treated with metallic salts, topped with basic dyes,

etc., the basic dyestuffs, sulphur dyestuffs, indanthrene dyestuffs, etc. Practice in color-mixing and matching is given. The student in this way acquires a collection of several hundred dyed samples which, when mounted in his pattern book, serve as a valuable reference. The course is supplemented by lectures, which will include the consideration of many difficult problems that arise in the dyehouse. Three periods. Required of second-year students. Mr. HALSTEAD.

Machine Drawing.—Sketching and drawing of machine parts, principally of textile machinery. Detail working drawings. The design of cams to give specified motions. Tracing and blue printing. Two periods. Required of Textile Sophomores. Mr. RICHARDSON.

ENGLISH.

English Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of second-year students. Three periods, first term. Mr. PRATT, Mr. WEBBER.

American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of second year students. Mr. PRATT, Mr. WEBBER.

NORMAL COURSES.*

The Normal Courses are intended for the education of teachers, both men and women, chiefly along industrial lines. Industrial education, particularly in agriculture, is being introduced into our public schools, and there is a constant demand for teachers well trained in these subjects. It is hoped by means of the Normal Courses to help supply this demand. Our School Law already requires agriculture to be taught in the public schools, and manual work will doubtless be added. The courses are devoted largely to agriculture and nature study, and include also a review of other public school studies.

Persons already engaged in teaching may, at slight expense of time and money, by means of the short course, or Summer School, make themselves proficient in one or more industrial lines. Persons preparing to teach may take the full courses, and thus become proficient, not only along industrial lines, but also in the other public school branches and in one or more sciences, or in higher mathematics and English. The industrial training given is both practical and theoretical, and is arranged with reference to the present needs of the public schools in North Carolina. The Normal Courses are as follows:

*See also Normal Division of Agricultural Course, page 53.

IV. Courses for Rural Teachers.

(a) Two-year Course.
(b) One-year Course.
(c) Four-weeks Summer Course.

First Year.

IV. (a) TWO-YEAR COURSE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Physics or Mathematics	5	5
Chemistry	3	3
English	3	3
Botany	3	3
Zoology	--	3
Agriculture	3	--
Plant Propagation	3	--
Vegetable Gardening	--	3
Physiology	--	3
Farm Management	3	--
Totals	23	23

Second Year.

Landscape Gardening	--	3
Practical Pomology	3	--
Soils	3	3
Poultry	3	--
Plant Diseases	2	2
Economic Entomology	--	3
Breeds	--	3
Dairy	3	--
Agriculture	4	4
Elective	4	4
Totals	22	22

IV. (*b*) ONE-YEAR COURSE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Botany	3	3
Zoology	--	3
Agriculture	3	--
Plant Propagation	3	--
Vegetable Gardening	--	3
Physiology	--	3
Soils	3	3
Poultry	3	--
Breeds	--	3
Dairy	3	--
Elective	5	5
Totals	23	23

THE SUMMER TERM OF AGRICULTURE FOR TEACHERS.

With the establishment of 215 State high schools, in which the most important subject of instruction is agriculture, and with the requirement that this subject be taught also in the common schools, the demand for teachers trained in the sciences upon which agriculture is founded and in their practical application, has become imperative. The Summer School of Agriculture has been established to afford teachers the opportunity to equip themselves to meet this demand.

All the resources of the agricultural department of the College in buildings, farms, live stock, and equipment, are used for the benefit of the Summer School. The entire faculty of this department, so far as needed, form the staff of instructors.

As it is of course impossible adequately to cover all the branches of agriculture in one session of four weeks, the course of study is arranged progressively for four years. Provision is made, however, for the immediate demands upon the teacher by giving in the first year of the course the essentials for successful school instruction in agriculture. A certificate of work done is issued at the end of each session, and upon the completion of the course there is conferred a full certificate which the State Superintendent of Public Instruction agrees to accept in lieu of examination on the subjects taken.

A special number of the College Record is issued in March, giving full information concerning courses of instruction, expenses, and other matters of the Summer School. A copy of this will be sent upon application to the Registrar of the College.

RULES FOR ADVANCED DEGREES.

Two degrees are conferred: The Engineering Degree to non-resident graduates of the engineering courses, and Master of Science to resident students pursuing graduate work.

ENGINEERING DEGREES.

1. The degree of Civil Engineer, Mechanical Engineer, or Electrical Engineer may be conferred upon graduates of the several engineering departments of the College not sooner than three years after graduation.

2. Each candidate for an engineering degree must file his application for enrolment not later than October 5th.

3. He must file with his application a statement of the work he has done since graduation and the title of the thesis which he will present.

4. The record of the work and the subject of the thesis must be approved by the Faculty's standing committee on graduate students before the applicant will be enrolled as a candidate for a degree.

5. The completed thesis must be submitted in approved form not later than May 1. Reports, designs, or drawings made in the regular course of his employment will not be accepted.

6. A candidate must submit with his thesis tangible records of the work he has done and upon which his application for the degree is based, such records to consist of complete drawings, detailed drawings, photographs, records of tests, or other such matter as will show the character of the work done and indicate the degree of responsibility that has been placed upon him.

7. If the record of the work done be approved and the thesis accepted by the Faculty, the candidate, upon notification, must present himself for examination not later than the Saturday preceding the annual commencement. The examination shall consist of oral questions on the subject-matter of the thesis and on the work done by the candidate since graduation.

MASTER OF SCIENCE.

The degree of Master of Science will be conferred on graduate students who fulfil the following requirements:

1. The candidate must have received the bachelor's degree from this College or another institution having an equivalent course of study.

2. Not less than one year must intervene between the conferring of the bachelor's degree and the master's degree.

3. A course of study consisting of one major and two minor subjects, aggregating fifteen periods, must be pursued during residence at the College for not less than one year.

4. The major subject, covering seven periods, shall be strictly graduate work and selected in that department in which the bachelor's degree has been taken.

5. The two minor subjects, aggregating eight periods, shall be chosen from departments allied to the department in which the major subject is taken. The work of the minor subject shall be of a grade not lower than that of the junior year in these departments. Work for which the applicant has received credit towards the bachelor's degree shall not be accepted for credit toward the master's degree.

6. A satisfactory thesis must be presented, the theme of which must be approved by October 5, and previous to his final examination the candidate shall be examined on his thesis and related subjects by a committee composed of professors in charge of the major and minor subjects and two professors in other departments designated by the Faculty.

7. In case the applicant be teaching or working for the College, he shall not be allowed to carry more than one-half of his work at one time, and no work done for the College as instructor shall be credited towards his degree.

FORM OF THESIS.

The thesis must be presented on unruled, white paper, 8⅛ by 11 inches in size, twenty-pound Persian bond or the equivalent. A suitable title page, printed or typewritten, must be prepared. The thesis must be neatly typewritten, properly paged, leaving a margin of 1½ inches on the left for binding, the writing to be on one side of the page only. All drawings or diagrams must be neatly and carefully prepared, and where the size of paper necessary is larger than that of the page it must be of such size as conveniently to fold in with the thesis.

The thesis shall become the property of the College and will be placed on file.

DONATIONS.

To the Department of Electrical Engineering and Physics.

Electrical Review and Western Electrician Publishing Company, Chicago.—*Electrical Review* and *Western Electrician.*

McGraw Publishing Company, New York.—*Electrical World.*

General Electric Company, Schenectady, N. Y.—*General Electric Review.*

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.—*Electric Journal.*

Various books have been donated by:

The Macmillan Company, New York, N. Y.

D. Van Nostrand Company, New York, N. Y.

McGraw-Hill Book Company, New York, N. Y.

Atkinson, Mentzor & Company, Boston, Mass.

To the Textile Department.

American Moistening Company, Boston, Mass.—Humidifying System.

Barber-Coleman Company, Rockford, Ill.—Two knotters.

H. W. Cheney, New York.—Sample fabrics for cloth analysis.

Bliss, Fabyan & Co., New York.—Sample fabrics for cloth analysis.

Emmons Loom Harness Company, Lawrence, Mass.—Loom harness and reeds.

T. C. Entwistle Company, Lowell, Mass.—One beam warper.

Felton Brush Company, Atlanta, Ga.—Loom and other machine brushes.

Fales and Jenks Machine Company, Pawtucket, R. I.—Two spinning frames.

Hampton Company, Easthampton, Mass.—Mercerized yarns.

Howard Brothers, Worcester, Mass.—Heddles and hand cards.

Lawrence & Co., New York.—Sample fabrics for cloth analysis.

Macrodi Fibre Company, Woonsocket, R. I.—Warper spools.

National Ring Traveler Company, Providence, R. I.—Travelers for spinning frames.

Oswald Lever Company, Philadelphia, Pa.—One 24-spindle skein winder.

Proximity Manufacturing Company, Greensboro, N. C.—One Denim warp.

Potter and Johnston Machine Company, Pawtucket, R. I.—One 40-inch card.

Wm. C. Robinson & Co., Baltimore, Md.—Loom and machine oils.

Saco-Lowell Shops, Boston, Mass.—One 24-harness dobby loom, one set machinery moving trucks.

Henry Searing, New York.—Sample fabrics.

Sergeson & Co., Philadelphia, Pa.—Hand threading shuttles.

Southern Novelty Company, Hartsville, S. C.—Paper tubes and cones.

Steel Heddle Company, Philadelphia, Pa.—Steel heddles and heddle shafts.

Joseph Sykes Brothers, Boston, Mass.—Card clothing for Potter and Johnston card.

Stafford Company, Readsville, Mass.—One 15-harness dobby loom, one drill and sheeting loom.

Shambow Shuttle Company, Woonsocket, R. I.—Shuttles for Stafford looms.

Tolhurst Machine Works, Troy, N. Y.—One hydro-extractor.

Universal Winding Company, Boston, Mass.—One 6-spindle cone and tube winder, one 24-harness filling winder.

J. H. Williams & Co., Millbury, Mass.—Hand threading shuttles.

J. B. Williams & Sons, Dover, N. H.—One can Cocheco Leather Belt Cement.

Whitin Machine Works, Whitinsville, Mass.—One 72-spindle spinning frame, one drawing frame, four deliveries.

Woonsocket Machine and Press Company, Woonsocket, R. I.—One slubber, one intermediate, one roving, one fine frame, two drawing frames, four deliveries each.

Kalle & Co., New York.—Collection of dyestuffs and pattern cards.

Cassella & Co., New York.—Collection of dyestuffs and pattern cards.

Farbenfabriken of Elberfeld Company, New York.—Collection of dyestuffs and pattern cards.

Berlin Aniline Works, New York.—Collection of dyestuffs and pattern cards.

Badische Company, New York.—Collection of dyestuffs and pattern cards.

Farbwerke-Hoechst Company, New York.—Collection of dyestuffs and pattern cards.

Geisenheimer & Co., New York.—Sample dyes.

American Dyewood Company, New York.—Sample dyes.

Draper Company, Hopedale, Mass.—Supplies for twister frame.

Clark Publishing Company, Charlotte, N. C.—Mill directory.

Davidson Publishing Company, New York.—Textile directory.

Canadian Textile Journal, Montreal, Canada.

Textile Manufacturer, Charlotte, N. C.
Southern Textile Bulletin, Charlotte, N. C.
Mill News, Charlotte, N. C.
Wool and Cotton Reporter, Boston, Mass.
Fiber and Fabric, Boston, Mass.
Textile Manufacturers' Journal, New York.
New York Journal of Commerce, New York.
American Industries, New York.

To the Department of Mechanical Engineering.

Bessemer Gas Engine Company, Chester, Pa.—6-horsepower kerosene engine, loaned.

International Harvester Company, Charlotte, N. C.—6-horsepower kerosene engine, loaned.

Clipper Belt Lacer Company, Grand Rapids, Mich.—Clipper belt lacer, donated.

Wells Bros. Co., Bridgeport, Conn.—Exhibition board of dies, taps, etc., donated.

Catalog Equipments, Boston, Mass.—Book case and bound catalogs of 126 manufacturers.

Heating and Ventilating Magazine Company, New York, N. Y.—*Heating and Ventilating Magazine.*

Refrigerating World, New York.—*Refrigerating World.*

To the Library.

Dr. Summey.—A copy of *Are You Going to College?*
Compilers.—*Railway Library, 1913.*
Publisher.—*Value of Cotton-seed Products.*

To the Department of Veterinary Medicine.

Dr. L. J. Herring.—Museum specimen (pathological).
Dr. A. C. Yow.—Museum specimen (pathological).
Dr. Watt Ashcraft.—Museum specimens (three photographs).

To the Department of Zoology and Entomology.

S. C. Bruner.—Three hundred and seventeen bird skins; twenty-two mammal skins.

CATALOGUE OF STUDENTS.

GRADUATES.

Name.	*Post Office.*	*Course.*
Enos Clarkson Blair, B.S.,	Raleigh,	Agr.
George Cleveland Buck, B.A.,	Grimesland, R. 2,	Agr.
Harley Wilson Bullard, B.S.,	Chadbourn, R. 2,	Agr.
Everett Hanson Cooper, B.S.,	West Raleigh,	Agr.
Henry Leon Cox, B.S.,	West Raleigh,	Chem.
Richard Oliver Cromwell,	West Raleigh,	Chem.
Charles Webb Davis, A.B.,	Beaufort,	E. E.
Thomas Fenner Gibson, B.E.,	Newark, N. J.,	C. E.
Lovic Rodgers Gilbert, B.E.,	Raleigh,	Tex.
John William Harrelson, B.E.,	West Raleigh,	M. E.
Rufus Williams Hicks, Jr.,B.E.,	New York, N. Y.,	M. E.
Guy Francis Hinshaw, B.E.,	Winston-Salem,	C. E.
Jesse Francis Huette, B.E.,	West Raleigh,	M. E.
Harvey Langill Joslyn, B.S.,	West Raleigh,	Agr.
Simon Jasper Marion, A.B.,	Raleigh,	Chem.
Frank Curtis Michael, B.E.,	Charlotte,	E. E.
Edgar Byron Nichols, B.E.,	West Raleigh,	M. E.
Warren Carney Norton, Ph.B.,	West Raleigh,	Agr.
Robert Avery Plyler, B.E.,	Monroe, R. 5,	E. E.
Junius Edward Porter, B.E.,	Weldon,	C. E.
William Owen Potter, B.E.,	Cash Corner,	C. E.
Elmer Aldrich Rickard, A.B.,	West Raleigh,	E. E.
Archie Knight Robertson, B.S.,	West Raleigh,	Agr.
James Blaine Scarborough, A.M.,	West Raleigh,	C. E.
Fleming Bates Sherwood, B.S.,	Raleigh,	Chem.
Robert Lee Sloan, B.S.,	Raleigh,	Agr.
Jeffrey Franklin Stanback, A.B.,	Raleigh,	Chem.
Herbert Lee Taylor, B.E.,	Baltimore, Md.,	M. E.
Walter Clyburn Taylor, B.E.,	Fall River, Mass.,	Tex.
Fred Barnett Wheeler, B.E.,	West Raleigh,	M. E.
John Spicer Wilson, B.E.,	Winston-Salem,	E. E.
Harry Curtis Young, B.S.,	West Raleigh,	Agr.
John Franklin Ziglar, B.E.,	Charlotte,	C. E.

SENIOR CLASS.

Name.	*Post Office.*	*Course.*
Henry Milton Alexander,	Matthews, R. 17,	E. E.
Lewis Carroll Atkisson,	Greensboro,	Tex.
Beverly Moss Blount,	Washington,	M. E.
Joseph Brandon Bruner,	Raleigh,	Agr.
John Cline Carpenter,	Charlotte, R. 12,	C. E.
John Mann Carter,	Washington,	E. E.
Edward Lamar Cloyd,	Lenoir,	M. E.
Guy Winston Commander,	Elizabeth City,	Agr.
Henry Bacon Constable,	Charlotte,	Chem.
Edward Livingston Cotton,	New London,	M. E.
Raymond Crowder,	Raleigh,	E. E.
Dallas Thornton Daily,	Elizabeth City,	C. E.
Leonidas Polk Denmark,	Raleigh,	C. E.
Charles Patterson Eldridge,	Raleigh,	C. E.
William King Eldridge,	Burkeville, Va.,	M. E.
Rutledge Hughes Feild,	Raleigh,	Agr.
Aaron Conard Fluck,	Lexington,	E. E.
William Benjamin Foster,	Winston-Salem,	M. E.
Peter Melvin Gilchrist,	Laurinburg, R. 4,	Agr.
Frank Temple Gray,	Cullasaja,	M. E.
James Holmes Haddock,	Richmond, Va.,	Tex.
John Hubbard Hall, Jr.,	Raleigh,	Agr.
Russell Peyton Harris,	Louisburg,	Agr.
Henry Mercer Harshaw,	Murphy,	E. E.
George Garland Hendricks, Jr.,	Greensboro,	C. E.
Vernon Ray Herman,	Conover, R. 1,	Agr.
David Lee Hooper,	Cullowhee,	M. E.
John Stewart Howard,	Salemburg,	Agr.
George Linwood Jeffers,	Richmond, Va.,	E. E.
Waverly Fletcher Kilpatrick,	Asheville,	Agr.
Robert Vernon Knight,	Tarboro, R. 1,	Agr.
Frank Kipp Kramer,	Elizabeth City,	M. E.
Joseph Raoul Leguenec, Jr.,	Abbeville, La.,	C. E.
Irvin Tracy Lewis,	Gastonia, R. 2,	Agr.
Jesse Webb Lindley,	Siler City,	Agr.
Donald Grattan McArn,	Laurinburg,	E. E.
William Daniel Martin,	Pelham,	M. E.
Robert Timberlake Newcomb,	Raleigh,	Agr.
Karl Osborne,	Cleveland Mills,	C. E.
William Victor Pearsall,	Wilmington,	Chem.

Name.	*Post Office.*	*Course.*
Asa Gray Phelps,	Merry Hill,	M. E.
John Gay Pinner,	Columbia, R. 1,	Agr.
Frank Wilson Procter,	Raleigh,	M. E.
Charles Landon Proffitt,	Bald Creek,	Agr.
John Duncan Ray,	Sanford,	Agr.
Chauncey Hardwick Roberts,	Fletcher,	Agr.
Landon Coats Rosser,	Jonesboro,	E. E.
Whitefoord Ingersoll Smith,	Asheville,	Tex.
Walter Johnston Smith, Jr.,	Charlotte,	Agr.
Herbert Spencer,	National Soldiers' Home, Va.,	Agr.
Daniel McGilvary Tate,	Norlina,	Agr.
Arthur Lee Teachey,	Wallace,	Agr.
Jesse Ernest Trevathan,	Rocky Mount, R. 1,	Agr.
James Hugh Ward, Jr.,	Rocky Mount,	C. E.
Charles Wright Weaver,	Franklin, R. 1,	M. E.
Buxton White,	Elizabeth City,	Agr.
Frederick Carl Wiggins,	Middleburg,	Chem.
John Rodman Williams,	Sanford,	C. E.
John Wilds Wilson,	Johnson City, Tenn.,	Tex.
Henry Kollock Witherspoon,	Greensboro,	C. E.
Forrest Egan Wysong,	Greensboro,	M. E.

JUNIOR CLASS.

Claude Shuford Abernethy,	Hickory,	M. E.
William Crocker Albright,	Mount Airy,	C. E.
Joseph Alexander Ardrey,	Fort Mill, S. C.,	M. E.
Charles Vernon Baker,	Raleigh,	C. E.
Fred Allen Baker,	Kings Mountain,	E. E.
Jere Wilson Bason,	Swepsonville,	Agr.
Marvin Eddleman Beatty,	Charlotte, R. 29,	C. E.
Johnnie Samuel Bennett,	Morehead City ,	E. E.
James Shepherd Bonner,	Washington,	E. E.
Clay Dwight Brittain,	Summerfield,	C. E.
James Heber Brooks,	Grifton,	Agr.
Ralph Brooks,	Alliance,	Agr.
Thomas Westmore Brooks,	Stem,	M. E.
Claudius LeRoy Carlton,	Boykins, Va.,	E. E.
Jay Victor Champion,	Raleigh,	M. E.
Louis Gorham Cherry,	Raleigh,	C. E.
Clete Walton Clark,	Troy,	Agr.
John Calhoun Collier, Jr.,	Goldsboro,	M. E.

Name.	*Post Office.*	*Course.*
William Shaw Corbitt,	Henderson,	M. E.
John William Cox,	Raleigh,	C. E.
Sherman Grady Crater,	Cycle,	Agr.
Sidney Mott Credle,	Swan Quarter,	C. E.
Chester Hane Crowell,	Newton,	M. E.
Robert Vernon Davis,	Fremont,	E. E.
John Alexander Farrior,	Raleigh, R. 4,	Agr.
Matthew Maury Fontaine,	Woodsdale,	E. E.
John Alexander Frazier,	Kings Creek,	C. E.
Louis Williams Gardner,	Shelby,	E. E.
Zebulon Clifton Gardner,	Shelby, R. 6,	Agr.
Amzi Nealy Goodson,	Concord,	E. E.
John Thomas Gragg,	Winston-Salem,	Tex.
Kenneth Lee Greenfield,	Kernersville,	Agr.
Robert Williams Hamilton, Jr.,	Jonesville, S. C.,	Agr.
John Fleming Harris,	Mapleville,	M. E.
William Stephen Haywood,	Mount Gilead,	M. E.
Harry Benjamin Henderlite,	Raleigh,	C. E.
Leonard Orr Henry,	Gastonia,	E. E.
Ernest Knox Herman,	Wadesboro,	M. E.
Edgar Allen Hester,	Whiteville,	E. E.
Robert Hugh Hill,	Beaufort,	E. E.
Ralph Hinton Hodges,	Washington,	Agr.
Thomas Hall Holmes, Jr.,	Goldsboro,	E. E.
Dean Roney Holt,	Graham,	M. E.
Herndon Hopkins,	Greensboro,	Agr.
Lona Alvin Jaynes,	Fonta Flora,	M. E.
John LeBon Jenkins,	Charlotte,	E. E.
Leander Brownlow Johnson,	Hendersonville,	Chem.
Victor Allison Johnston,	Mooresville,	Agr.
Rex Livingston Kelly,	Sanford,	E. E.
William Frederick Kendrick,	Charlotte,	M. E.
William Pendleton Kennedy,	Warsaw,	E. E.
Paul Hanner Kime,	Greensboro,	Agr.
Henry Albert Lilly,	Mount Gilead,	Agr.
Robert Opie Lindsay,	Madison,	Tex.
William Simpson McKimmon,	Raleigh,	C. E.
James Walter McLeod,	Rowland,	Agr.
Joseph Henry Mason,	Charlotte,	Tex.
John Daniel Miller,	New London,	C. E.
Tommy Lee Millwee,	Charlotte,	E. E.
Charles Alfred Moore,	Kinston, R. 2,	E. E.

Name.	*Post Office.*	*Course.*
Benjamin Franklin Mullen,	Charlotte,	M. E.
John Frank Neely, Jr.,	Pineville,	Agr.
David Benjamin Nooe,	Pittsboro,	Agr.
Reid Allison Page,	Biscoe,	Agr.
Rufus Gwyn Parlier,	Ronda,	M. E.
Thomas Clayton Pegram,	Asheville, R. 4,	Tex.
John Bailey Pridgen,	Elm City,	C. E.
Carl Clawson Proffitt,	Bald Creek,	Agr.
George LeConte Ramsey,	Raleigh,	E. E.
Parker Royall Rand,	Garner, R. 1,	Agr.
Henry Rankin,	Gastonia,	M. E.
Lewis Banks Ray,	Graham,	M. E.
Hugh Calvin Rea,	Matthews,	Agr.
Ray Miller Ritchie,	Concord,	Agr.
Philip Austin Roberts,	Red Springs,	C. E.
John Paul Robertson,	Rowland,	Agr.
Zeb Blaine Robinson,	Weaverville,	E. E.
William Haywood Rogers, Jr.,	Raleigh,	C. E.
Augustine Joseph Russo,	Portsmouth, Va.,	C. E.
David Floyd Sasser,	Goldsboro,	M. E.
Jesse Woodson Saunders,	Reidsville,	E. E.
Orrion Mayburn Schlichter,	Vaughan,	M. E.
Clement Oscar Seifert,	New Bern,	C. E.
Brooks Walker Setzer,	Troutman,	E. E.
Karl Sloan,	Statesville,	C. E.
Bascom Pierce Smith,	Guilford College,	M. E.
Paul Elwood Snead,	Reidsville,	E. E.
Joseph McKay Spears,	Lillington,	C. E.
Reuben L. Tatum,	Cooleemee,	C. E.
Alfred Tennyson Taylor,	McCullers,	Agr.
Grover William Underhill,	Wendell,	Agr.
Jacob Osborne Ware,	Kings Mountain,	Agr.
Will Miller Watson,	Swan Quarter,	E. E.
George Henderson Webb,	Morehead City,	C. E.
Harry Graves Wharton,	Greensboro,	Agr.
George Whitson,	Swannanoa,	E. E.
John Franklin Williams,	Bessemer City,	E. E.
Herman Elton Winston,	Youngsville,	Tex.
James Harvey Withers, Jr.,	Broadway,	Agr.

SOPHOMORE CLASS.

Name.	*Post Office.*	*Course.*
Oliver Stanhope Anthony,	Shelby,	Tex.
John Welsford Artz,	Old Fort,	Agr.
John William Avera,	Smithfield, R. 1,	Agr.
John Robin Baucom,	Raleigh, R. 2,	Agr.
Frederick Neil Bell,	Concord,	E. E.
Tyson Yates Blanton,	Mooresboro,	Agr.
Frederic Jones Bounds, Jr.,	Weldon,	Tex.
David Malthaner Bower,	Lenoir,	C. E.
Ebenezer Erskine Boyce,	Gastonia,	E. E.
James Gaston Boylin,	Wadesboro,	Agr.
Zeb Boyce Bradford,	Huntersville,	Tex.
William Staley Bridges,	Wakefield, R. 1,	M. E.
Almon Hill Carter,	Wallace,	Agr.
Marsh Hutzler Chedester,	Asheville,	E. E.
Ambrose Schenck Cline,	Lincolnton,	Agr.
Rodney Lee Coleman,	Wise,	E. E.
Clifford Cannon Cooke,	Graham,	C. E.
Milton Lee Correll,	Lumberton,	Chem.
Francis Edwin Coxe,	Red Springs,	E. E.
Harry Crawford,	Waynesville,	E. E.
Hilary Herbert Crawford,	Waynesville,	E. E.
John Kingsley Culbertson,	Mooresville,	M. E.
William Pressley Davis,	Stovall,	C. E.
Albert George Day,	Trenton, S. C.,	E. E.
William Carter Dodson,	Greensboro,	Tex.
Mynar Cecil Donnell,	Greensboro, R. 4,	Agr.
Osbert Leon Edwards,	Conover,	C. E.
William Henry Elliot,	Thornwall,	Agr.
Joshua Barnes Farmer, Jr.,	Wilson,	Agr.
Harold Clay Foreman,	Elizabeth City,	Agr.
Marshall Clay Fowler,	Statesville,	E. E.
Daniel Robert Steele Frazier, Jr.,	Kings Creek,	C. E.
Frederick Carlton Gardner,	Rocky Mount,	C. E.
John LeRoy Gregson, Jr.,	Elizabeth City,	C. E.
Robert Vance Grindstaff,	Asheville,	M. E.
Frank Joshua Haight,	Balsam,	E. E.
Carl Rush Harris,	Mount Gilead,	Tex.
Adolph Theodore Hartmann,	Charlotte,	C. E.
Edwin Byron Haynes,	Raleigh,	E. E.
Joseph Bunker Haynes,	Mount Airy,	Agr.

Name.	*Post Office.*	*Course.*
Henry Wadsworth Hayward,	Mount Gilead,	M. E.
John Wade Hendricks,	Cana, R. 2,	Agr.
Paul Eugene Hine,	Old Town,	M. E.
Bruce Dunston Hodges,	Washington,	C. E.
Edison Parker Holmes,	North Wilkesboro,	E. E.
Edward Holland Holton,	Winston-Salem,	Agr.
Robert Mullen Hooper,	Beaufort,	E. E.
Frank William Howard,	Bridgeport, Conn.	C. E.
John Eli Ivey,	Norwood,	Agr.
Horace Lenoir Jeffress,	Fletcher, R. 1,	Agr.
Sidney Earle Jennette,	Lake Landing,	C. E.
Fred Duncan Jerome,	Poplar Branch,	M. E.
Paul Worthy Johnson,	Raeford,	Agr.
Walter Myatt Johnson,	Chalybeate Springs,	E. E.
Robert Thomas Kehoe,	New Bern,	M. E.
Woodford Armstrong Kennedy,	Warsaw,	Tex.
Frederick Swindell Kluttz,	Concord,	C. E.
George Edward Knox,	Lanvale,	C. E.
George Harold Lawrence,	Wickford, R. I.	Agr.
Needham Herring Loftin,	Mount Olive,	E. E.
James Robert McArthur,	Greenville, R. 6,	Agr.
Prentiss Horace McCall,	Charlotte,	M. E.
Robert Wissner McGeachy,	Raleigh,	C. E.
Jacob Wyatt McNairy,	Lincolnton,	E. E.
Frank Coble McNeill,	Cameron,	C. E.
Charles Briggs Malone,	Providence, R. I.,	M. E.
Mark Struve Martenet,	Acme,	Agr.
William Emery Matthews,	Maxton, R. 4,	C. E.
Morell Battle Maynard,	Kerr,	E. E.
Lawrence Charles Melville,	Clifton, N. J.	Agr.
Gordon Kennedy Middleton,	Warsaw,	Agr.
Ewing Stephenson Millsaps,	Statesville,	Agr.
Todd Bowman Misenheimer,	Charlotte,	Tex.
Samuel John Mitchiner, Jr.,	Garner,	M. E.
Daniel A. Monroe,	Eagle Springs,	E. E.
Francis Scarr Morrison,	Statesville,	Agr.
William Fowler Morrison,	Wilmington,	Tex.
Edward Moseby Murray,	Charlotte,	Tex.
Walter Wendell Olive,	Apex,	Agr.
Marshall Fred Ormand,	Kings Mountain,	Agr.
Walter Leak Parsons, Jr.,	Rockingham,	Tex.

Name.	*Post Office.*	*Course.*
James Carter Perry,	Durants Neck,	M. E.
Julian Hawley Poole,	Jackson Springs,	Agr.
Jack Addison Purefoy,	Asheville,	Agr.
David Miller Rea,	Matthews,	C. E.
Joseph Lucius Reed,	Asheville, R. 2,	Agr.
Victor Arthur Rice,	Cleveland, Ohio,	Agr.
Wallace Whitfield Riddick,	West Raleigh,	C. E.
Horace Bascomb Robertson,	Asheville,	Tex.
James Henry Rogers,	Hurdle Mills,	Agr.
Lindley Murray Rowe,	Burgaw,	C. E.
Henry Fred Rush,	Raleigh,	Agr.
Charles Reid Russell,	Denton,	C. E.
David Morton Saint Sing,	Wise,	M. E.
William Kerr Scott,	Haw River, R. 1,	Agr.
Thomas Park Simmons,	Asheville,	C. E.
John Henry Speas,	East Bend,	Agr.
John Alpheus Stallings,	Durham, R. 6,	C. E.
Paul Ernscliffe Stallings,	Concord, R. 6,	Agr.
Charles Whitson Stanford, Jr.,	Teer, R. 1,	Agr.
Reuben Bennett Stotesbury,	Swan Quarter,	Agr.
Claude Webster Tabor,	Raleigh,	C. E.
Gurdon Lucius Tarbox,	Georgetown, S. C.,	M. E.
Preston Powell Tucker,	Sandidges, Va.,	Chem.
Ernest Craig Turner,	Mebane,	Agr.
Napoleon Bonaparte Tyler,	Rich Square,	Agr.
Lonnie Bascom Ward,	Mocksville, R. 2,	E. E.
Nathaniel Warren Weldon,	Norlina, R. 1,	Agr.
Lidey Rand Wellons,	Smithfield, R. 1,	Agr.
John Henry Wells,	Willard,	C. E.
Fred Murrow West,	Wests Mill,	M. E.
Druid Emmet Wheeler,	Asheville,	Tex.
William Preston White, Jr.,	Hobgood,	M. E.
John Francis Williams, Jr.,	Charlotte,	Chem.
Peter McKellar Williams, Jr.,	Fayetteville,	Agr.
Thomas Henry Williams,	Warrenton,	M. E.
Roy Lee Williamson,	Raleigh,	C. E.
Noah Rouse Wilson,	Wilsons Mills,	Agr.
Louis Ernest Wooten,	Fountain,	C. E.
Robert Cleveland Young,	Asheville,	Agr.

FRESHMAN CLASS.

Name.	*Post Office.*	*Course.*
Vernis Absher,	Statesville,	E. E.
Edward Andrew Adams, Jr.,	Raleigh,	M. E.
Stephen Richard Adams,	Asheville,	Agr.
Bonva Closson Allen,	Clayton, R. 2,	E. E.
Orla Finger Asbury, Jr.,	Charlotte,	E. E.
Wilburn Clegg Austin,	Indian Trail,	E. E.
George Ganzer Avant,	Wilmington,	E. E.
Leon Waverly Bailey,	Smithfield,	E. E.
Bruce Crayton Baker,	Fairmont,	Tex.
George Garland Baker,	Washington,	M. E.
Louis William Baker,	Arlington, N. J.,	E. E.
Robert Morisey Barden,	Warsaw,	C. E.
James Monroe Barnhardt,	Harrisburg, R. 2,	Agr.
Pierre McFarland Bealer, Jr.,	Washington, D. C.,	Agr.
Thomas Ambrose Belk,	Mount Holly,	Agr.
Jay Lang Benbow,	Oak Ridge,	Agr.
Andrew William Bengtson,	Norfolk, Va.,	E. E.
Wilmer Zadock Betts,	Raleigh,	C. E.
Juan Bibolini,	Asuncion, Paraguay,	Agr.
Balfour Cowan Blalock,	Norwood,	E. E.
George Benjamin Blum,	Reidsville, R. 2,	Agr.
Edgar Richard Boney,	Wallace,	C. E.
Cecil Theodore Bost,	Hickory,	M. E.
Dana Edgar Bowen,	Burgaw,	Agr.
Armistead Jerman Boyd,	Warrenton,	Tex.
Burrell Clarence Boyles,	Rougemont, R. 2,	Agr.
James Frank Brinkley, Jr.,	Greenville,	C. E.
Frank Bishop Brinn,	Hertford,	C. E.
Bryce Benjamin Brown,	Greenville,	E. E.
William Thaddeus Bryan,	Grifton,	E. E.
Noah Burfoot, Jr.,	Elizabeth City,	Tex.
Carl Hunter Burt,	Apex, R. 5,	Agr.
Percy Listle Canady,	Wilmington,	M. E.
Charles Royal Carroll,	Mizpah,	Agr.
Herman Jesse Chappell,	Rich Square, R. 1,	Agr.
Harper Nicholson Cherry,	Hendersonville,	Agr.
William Henry Clinard, Jr.,	Winston-Salem,	M. E.
Giles Ashton Clute, Jr.,	Clinton,	Tex.
Edgar Exum Cobb,	Fremont,	M. E.
Robert Brice Cochran,	West End,	M. E.

Name.	*Post Office.*	*Course.*
Robert Lamar Cochrane, Jr.,	Charlotte,	Chem.
Willard Marion Coffin,	Greensboro, R. 1,	E. E.
James Kirk Coggin,	New London, R. 2,	Agr.
William Thomas Combs,	Leaksville,	C. E.
Allen Roley Conley,	Marion,	Agr.
Sam Martin Connell,	Warrenton,	E. E.
Cecil Edwards Cooke,	Graham,	Agr.
Charles Kearney Cooke,	Louisburg,	M. E.
Euclid Monroe Cooke,	Graham,	Tex.
James Wesley Cooper,	Henderson,	Tex.
George Chandler Cox,	Cullowhee,	E. E.
Andrew Crinkley,	Raleigh,	M. E.
Walter Brooks Cross,	Huntersville, R. 20,	M. E.
Russell Alexander Crowell,	Acton,	Agr.
Howard Swineford Danner,	South Richmond, Va., R. 7,	Agr.
Edwin Borden Davis,	Goldsboro,	Agr.
Harold Wilson Davis,	Morganton,	Tex.
Joseph Jonathan Davis,	Louisburg,	Tex.
Willie Anderson Davis,	Lucama,	Agr.
Paul Wright DeLaney,	Matthews, R. 27,	M. E.
Thomas Marvin Denson,	High Point,	C. E.
Claude Palmer Derby,	Monroe,	Tex.
Moses Moore Dew,	Wilson,	Agr.
William Sergeant Dixon, Jr.,	Leasburg,	M. E.
Frederick Emmett Ducey,	Portsmouth, Va.,	Agr.
Robert McKee Duckett,	Charlotte,	Tex.
Alvah Dunham,	White Oak, R. 1,	Agr.
Wallace Stanhope Dunn,	Raleigh,	E. E.
James Davidson Eborn, Jr.,	Bath,	Agr.
Thomas Benjamin Elliott,	Sanford, R. 3,	Agr.
William Harry Entwistle,	Rockingham,	Tex.
Charles Wesley Eure,	Halifax, R. 1,	Tex.
Preston King Faison,	Goldsboro,	Tex.
Paul Brandon Fleming,	Cleveland,	E. E.
Robert Eugene Fleming,	Mocksville, R. 4,	Agr.
Landon Cabell Flournoy,	Charlotte,	E. E.
Thomas Cecil Frazier,	Liberty,	C. E.
Edwin Wood Fuller,	Raeford,	E. E.
Fitzhugh Lee Gammon,	Whitakers,	Agr.
Russell Gant,	Burlington,	Tex.
Early Baxter Garrett,	Burlington, R. 7,	Agr.

Name.	*Post Office.*	*Course.*
Vernon Hayes Garrett,	Ahoskie,	Agr.
James Edwin Gaskill,	Fairmont, W. Va.,	Chem.
Charles Slocumb Gay,	Goldsboro,	E. E.
Walter John Gibson, Jr.,	Campobello, S. C., R. 2,	M. E.
John Bell Gill, Jr.,	Statesville,	C. E.
Benjamin Duke Glenn,	Greensboro,	Tex.
Carl Jack Goldston,	Goldston,	C. E.
Floyd Melvin Gooch,	Asheville,	M. E.
Robert Atkins Gray,	Zwolle, La.	E. E.
Thurman Morris Gregory,	Shiloh,	C. E.
Harry Percy Grier, Jr.,	Statesville,	C. E.
Henry Spurgeon Grose,	Statesville, R. 2,	Agr.
Walter Durham Hampton,	Brevard,	E. E.
Thomas Wheeler Hancock, Jr.,	Winston-Salem,	Agr.
Abram Edgar Harshaw,	Murphy, R. 2,	M. E.
John Ruby Hauser,	North Wilkesboro,	E. E.
William Seldon Haverty,	Smithfield, Va.,	Agr.
Robert Lee Hayes,	West Raleigh,	Chem.
Charles Estes Henderson,	Henderson,	E. E.
James Robert Herron,	Charlotte,	E. E.
John Moore Gray Hicks,	Wilmington,	Agr.
William Ransom Hoots,	Jennings,	Agr.
Claud Revere Horn,	Mocksville,	E. E.
Roy Zelle Hornaday,	Rock Creek, R. 2,	Agr.
Oden Lafayette Hughes,	Elizabeth City,	Agr.
James Franklin Hull,	Shelby,	Tex.
David Lutterloh Hunt,	Brevard,	E. E.
John Douglas Hunt,	Pomona,	Agr.
Grady Melton Hutchison,	Candler, R. 3,	E. E.
James Lawrence Hutton,	Greensboro,	M. E.
John Jacob Jackson,	Kinston, R. 4,	Tex.
Shober Keaner Jackson,	High Point, R. 2,	Agr.
Cary Jeffress,	Fletcher, R. 1,	M. E.
Eugene Carl Jernigan,	Benson,	M. E.
Eugene Calhoun Jones,	Raleigh,	Agr.
William Cooke Jones,	Raleigh,	C. E.
Noble Lewis Jordan,	Hendersonville, R. 3,	C. E.
Winfield Kerr Keeter,	Marion,	E. E.
Julian Faison Keith,	Wilmington,	Agr.
Robert Pearson Kelly,	Cleveland,	M. E.
Luther William Kidd,	Paw Creek,	Agr.

Name.	*Post Office.*	*Course.*
Lyman Kiser,	Reepsville,	Agr.
Wiley Simms Lamm,	Lucama, R. 3,	Agr.
James Thomas Larkins, Jr.,	Garland,	C. E.
Frank Lee Lassiter,	Wagram, R. 1,	M. E.
William Luther Lawson,	Rougemont,	Agr.
George Balch Lay,	Raleigh,	Chem.
Joseph Lee, Jr.,	Landrum, S. C.	Agr.
William Daniel Lee,	Asheville,	Agr.
William Edward Leeper,	Belmont,	C. E.
Willie DeWitt Lemons,	Stoneville,	E. E.
Charlie Riley Leonard,	Lexington, R. 3,	Agr.
Archibald Gregory Lewis,	Stovall,	E. E.
Elbert Francis Lewis,	Greensboro,	M. E.
Robert Lingle Lewis,	Gastonia, R. 2,	C. E.
Chauncey Bret Lomax,	Lomax,	E. E.
Duncan Lothrop,	Bridgewater, Mass.,	Agr.
Edward Burage McAllister,	Middleburg,	E. E.
James Wilson McArver,	Gastonia,	C. E.
Zeb Arch McCall,	Elrod,	Agr.
Alpheus Adams McCullen, Jr.,	Durham,	E. E.
Ralph McDonald,	Raleigh,	C. E.
James Edgar MacDougall,	Amesbury, Mass.,	Tex.
Neill Alexander McEachern,	Saint Pauls,	Agr.
Alexander McIver,	Mebane, R. 4,	E. E.
Alexander McKenzie,	Raleigh,	M. E.
Francis Kelton McKoy,	Wilmington,	Agr.
Cary Stamey McLeod,	Jackson Springs,	Agr.
Elbert McPhaul,	Red Springs,	Agr.
James Ernest McPhaul,	Shannon,	Chem.
Thomas Jackson Martin, Jr.,	Pelham,	M. E.
Peyton Howard Massey,	Zebulon, R. 2,	Agr.
Stanley William Matthews,	Rocky Mount,	E. E.
Elbert Maxwell,	Seven Springs,	E. E.
Frank Harold Medlock, Jr.,	Charlotte,	Agr.
Allen Lindsay Midyette,	Fairfield,	C. E.
Carl Elmer Miller,	Chadbourn,	Agr.
Gratz Brown Millsaps,	Statesville,	E. E.
Eugene James Moore,	Winston-Salem,	Agr.
John Isham Moore,	Miami, Fla.,	E. E.
Robert Raymond Morrison,	Concord,	Agr.
Zachariah Ennis Murrell, Jr.,	Wilmington,	Agr.
Clifford Goulde Neergaard,	Waynesville,	M. E.

Name.	*Post Office.*	*Course.*
William Grady Newell,	Charlotte,	Agr.
Stanley Lewis Newman,	West Raleigh,	Agr.
Ed. Cranmer Newton,	Southport,	Agr.
Frank Lassiter Nixon,	Sunbury, R. 1,	C. E.
John Andrew Northcott, Jr.,	Winton,	E. E.
Archie Tillman Odom,	Gibson, R. 2,	Agr.
Henry Blount Osborne,	Clyde,	Agr.
Thomas Carter Osborne,	Clyde,	Agr.
Charles Benjamin Park, Jr.,	West Raleigh,	Agr.
James Fletcher Parker, Jr.,	Fayetteville,	C. E.
Frank Edward Parrott,	Creedmoor, R. 1,	Agr.
Joseph Anderson Patrick,	Lowell, R. 1,	Agr.
Harry Smallbones Pearsall,	Rocky Mount,	E. E.
Robert James Pearsall,	Dunn,	E. E.
William Shelton Penn,	Boone,	Agr.
Herbert Flavius Pfaff,	Tobaccoville,	Agr.
Samuel Cole Plott,	Waynesville,	C. E.
Junius Bishop Powell,	Roxobel,	Agr.
William Weyman Price,	Raleigh,	Agr.
Frank Hitch Pritchard,	New Bern,	E. E.
Walter Roscoe Radford,	Cane River,	Agr.
Junius Elliot Reister,	Asheville,	C. E.
Wilfred Herndon Robbins,	Raleigh,	Agr.
Leroy Leo Roberson,	Robersonville,	Chem.
John Franklin Rockett,	Randleman, R. 1,	E. E.
John Cole Rose,	Conway,	Agr.
Alvah Barber Ross,	Fort Mill, S. C., R. 2,	M. E.
Horace Ralph Royster,	Shelby,	Tex.
John Elam Rufty,	Loray, R. 1,	Agr.
James Malcolmson Rumple,	Davidson,	E. E.
William Marcellus Russ,	Raleigh,	Agr.
Franklin Bumdage Russell,	Bath, N. Y.,	M. E.
Daniel Russell Sawyer,	Wilmington,	Agr.
Guthrie Carlo Self,	Belwood, R. 1,	Agr.
Nathan Stowe Sharp,	Waterloo, Iowa,	Tex.
Charles Basil Skipper, Jr.,	Lumberton,	E. E.
John Randolph Slaughter,	Danville, Va.,	E. E.
Donald Rhyne Sloan,	Charlotte, R. 5,	Agr.
Graham Munroe Sloan,	Black Mountain,	E. E.
Allen Ernest Smith,	Hope Mills, R. 2,	Agr.
Edward Chambers Smith, Jr.,	Raleigh,	C. E.
Lindley Dawson Smith,	Sanford,	E. E.

Name.	*Post Office.*	*Course.*
Frank Paul Spaulding,	Bristol, Va.,	C. E.
John Earl Spicer,	Stovall,	E. E.
William Barnard Stainback,	Henderson,	Tex.
Carl Edward Steinmetz,	Raleigh,	M. E.
Ben Bryan Stockard,	Greensboro,	E. E.
Michael Alfred Stough,	Cornelius,	Tex.
William Whitmel Swain, Jr.,	Henderson, R. 1,	Agr.
Louis Joseph Swink,	Fentress, Va., R. 2,	Tex.
James Jeffries Sykes,	Charlotte,	E. E.
George Lee Tate,	Bryson, Quebec, Can.	C. E.
John Roy Taylor,	Mount Airy,	Agr.
Leslie Lancaster Taylor,	Rutherfordton,	Tex.
Ben Temple,	Danville, Va.	Agr.
John Simpson Tennent,	Asheville,	C. E.
Horace Carter Thomas,	Cheoah,	C. E.
Louis Dale Thrash,	Asheville, R. 3,	Agr.
Frederick Leroy Toepleman,	Henderson,	Agr.
James Luther Tomlinson,	Lucama, R. 3,	Agr.
Frank MacAnally Townsend,	Greensboro, R. 4,	Agr.
William Freeman Townsend,	Greensboro,	Tex.
William Lawrence Trevathan,	Rocky Mount,	C. E.
George Boston Troxler,	Brown Summit,	Agr.
Edwin Tucker,	Merry Mount,	E. E.
Charles Ernest Van Brocklin,	Syracuse, N. Y.,	C. E.
Bryan Beatrice Wagoner,	Whitehead,	E. E.
Suade Gower Walker,	Rutherfordton, R. 4,	Agr.
George Spencer Warren,	Wilson,	Agr.
Sylvester Hassell Warren,	Hurdle Mills, R. 2,	Agr.
John Sanford Warwick,	Laurinburg, R. 2,	E. E.
James Thaddeus Weatherly,	Greensboro, R. 1,	Agr.
Francis Battle Whitaker,	Battleboro, R. 2,	Agr.
Percy Stanley White,	Greensboro,	Agr.
Wyatt Yelverton Whitley,	Fremont,	E. E.
Julian Wilson,	Stovall,	M. E.
Philip Chaffin Yarboro,	Osgood,	Agr.
Yaro Zenishek,	Raleigh,	M. E.

TWO-YEAR COURSES.

First Year.

Name.	*Post Office.*	*Course.*
Duncan Patterson Baldwin,	Ellerbe,	M. A.
Thaddeus Lawrence Blue,	Carthage, R. 3,	Agr.
Raymond Moser Butner,	Bethania,	Agr.
Charles Frederick Campen,	Hertford,	M. A.
Joseph Everett Cilley,	Hickory,	M. A.
Floyd Edward Cohoon,	Columbia,	M. A.
William Howard Corpening,	Worry,	Agr.
Harry Pharr Craven,	Charlotte, R. 6,	M. A.
Roy Churchwell Crowell, Jr.,	Acton,	Agr.
Thomas Franklin Doggett,	Summerfield, R. 1,	M. A.
Willis Frank Dowd, Jr.,	Charlotte,	Tex.
Willie James Evans,	Burlington,	Tex.
Milton McIntyre Fairly,	Laurinburg, R. 1,	M. A.
Charles Leon Fountain, Jr.,	Tarboro, R. 4,	Agr.
Hassell Layfette Gibson,	Grimesland,	Agr.
Russell Elliott Goff,	Providence, R. I.,	Tex.
William Heman Hall,	Rose Hill, R. 1,	Agr.
Charlie Moscow Harrell,	Gates, R. 2,	M. A.
Minor Thurlo Hinson,	Rockingham,	Agr.
William Herbert Hodgin,	Jamestown, R. 1,	Tex.
John Spier Holton,	Ayden,	Agr.
John David Hunter,	Charlotte,	Tex.
Fred Ward Jones,	Grimesland,	M. A.
William White Kerr,	Fort Mill, S. C.,	Tex.
Robert Roy Kessinger,	Washington,	Agr.
Lewis Morgan Leach,	Thomasville,	Agr.
Kenneth Reid Lewis,	Gastonia, R. 2,	Vet.
Carey Pharr Lowrance,	Mooresville, R. 3,	Agr.
Colin Shaw McArthur,	Laurinburg,	Agr.
Daniel Allen McDonald, Jr.,	Carthage,	Agr.
James Thomas Mabry,	Norwood,	Agr.
Thomas Flynn Meroney,	Mocksville,	M. A.
Thomas Carlyle Pate,	Gibson,	M. A.
William Everit Penny,	Neuse, R. 1,	M. A.
Edmund Jordan Pruden,	Aulander, R. 1,	Agr.
Morris Shuford Ramsaur,	Lincolnton,	Agr.
Arthur Cromwell Riley,	Wilson,	Agr.
Edward Lindsay Shuford, Jr.,	Hickory,	Vet.
William Thomas Stafford, Jr.,	South Mills,	M. A.

Name.	*Post Office.*	*Course.*
Clyde Walston Stevens, Jr.,	Elizabeth City,	M. A.
William Boyd Taylor,	Soudan, Va.,	M. A.
George Glidden Temple, Jr.,	Danville, Va.,	M. A.
Parker Gillespie Tenney,	Dubuque, Iowa,	Tex.
Milton Bernard Turner,	Washington, D. C.,	M. A.
Earl Dewitt Waldin,	Miami, Fla.,	M. A.
William Thomas Wray,	Wilson,	M. A.

Second Year.

John Jarod Adkins, Jr.,	Southport,	M. A.
Carey Len Bell,	Scotland Neck,	Vet.
Wilmer Stroud Hogan,	Hillsboro,	M. A.
John Wesley Hundley,	Jefferson,	M. A.
John Davis McLean,	Wagram, R. 1,	M. A.
William Herbert Potts,	Mount Olive, R. 5,	Vet.
Stanly Smith,	Gates, R. 1,	Agr.
Frank Tate Stowe,	Charlotte, R. 4,	Vet.
Glenn Raymond Ward,	High Point,	Tex.
Herbert Payne Warren,	Spring Hope,	Agr.
Joseph Huske Williams,	Duke, R. 1,	Agr.
William Roy Wolfe,	Bessemer City,	Vet.

ONE-YEAR COURSE IN AGRICULTURE.

Name.	*Post Office.*
James Oscar Boone,	Lumberton, R. 2.
Lewis Plummer Bryan,	Marshall, R. 2.
Larry Dew Hooks, Jr.,	Fremont.
Robert Reid Mendenhall,	High Point, R. 5.
Allen Monroe,	Eagle Springs.
Hanson Durham Powers,	Willard.
William Willis Robeson,	Tar Heel.
Guy Alexander Shields,	Huntersville, R. 20.
Pinckney Jones Steele,	Yadkin Valley.
James Martin Walker,	Benaja, R. 1.
Henry Clay Wilson,	Summerfield, R. 1.
Julian Curtis Yarboro,	Hope Mills, R. 2.

WORK COURSE—AGRICULTURE.

First Year.

Lewis Whitley Bartholomew,	Raleigh, R. 5.
Sam Bunyan Caldwell,	Charlotte, R. 2.

Name.	*Post Office.*
John Frederick Clark,	Greensboro, R. 3.
Leroy Eaton Feezor,	Winston-Salem, R.1.
Samuel Wade Furches,	Mocksville, R. 2.
James Fleet Holiday,	Snow Camp, R. 1.
John Lloyd Jenkins,	Gastonia, R. 4.
Samuel Tate Latta, Jr.,	Hillsboro, R. 1.
Coran Stephen Rollins,	Ellenboro, R. 1.
Blake Conway Wells,	Canton, R. 2.
Van Carson Wells,	Canton, R. 2.

Second Year.

William Monroe Andrews,	Fairmont.
William Ralph Britt,	Garner, R. 1.
Robert Ransom Corpening,	Lenoir.
Lynn Walker Harkey,	Charlotte.
Charles Dickerson Kirkpatrick,	Charlotte, R. 2.
Clarence Lee Ramseur,	Bessemer City.
William Herbert Ross,	Charlotte.
William Brown Sample,	Charlotte, R. 1.
Charles Paul Wrenn,	Siler City.

SUMMER SCHOOL IN AGRICULTURE.

Arthur Vance Cole,	Durham.
Jerry Day,	Blowing Rock.
Marcus Baxter Dry,	Cary.
Frank Hare,	Angier.
Lee Lyndon Hargrove,	Battleboro.
James Hutchins,	Hoffman.
Harry Franklin Latshaw,	Pittsburgh, Pa.
Seaton Gales Lindsay,	Troy.
William Clide McColl,	Roberdell.
Elihu Pinckney Mendenhall,	Monroe, R. 5.
Early Hampton Moser,	Zebulon.
Orren Gentry Reynolds,	Ellerbe.

WINTER COURSE IN AGRICULTURE.

Thomas Watkins Allen,	Creedmoor, R. 1.
George Lee Beck,	Mocksville, R. 2.
Clarence Upson Vintor Benton,	Beaufort, S. C.
Lewis Earl Blackman,	Norlina.
Cary Bradley,	Broadway, R. 2.

Name.	*Post Office.*
Charles Henry Burnett,	Wilmington, R. 2.
Andre Louis Causse, Jr.,	Raleigh.
Luke Squires DeLaney,	Matthews.
Albert Magruder Dickinson,	Fremont, R. 2.
Sam Dobson,	Statesville, R. 5.
Steele Du Bosque,	Manchester.
Monroe Preston Edwards,	Charlotte.
Lacy Robert Fogleman,	Greensboro, R. 2.
James Vernon Fulton,	Kernersville, R. 3.
Silas Martin Gordon,	Pinnacle, R. 2.
Robert Sterling Graves,	Yanceyville.
Robert Henry Wellons Jones,	Mebane, R. 5.
Percy Beach McCoy, 2nd,	Manchester.
John Arnold McLeod,	Jonesboro, R. 3.
Don McLohon,	Grifton, R. 2.
Charles Payne Mason,	Pinehurst.
Royal Alexander Mewborn,	Snow Hill, R. 4.
Clarence Millsaps,	Statesville, R. 5.
Arch Lewis Moore,	Roxboro, R. 5.
William Jenness Moore,	Bruce.
Willis Warren Newell,	Newell.
Dwight Hendricks Osborne,	Greensboro, R. 3.
David Sutton Phelps,	Merry Hill, R. 2.
James Carl Rowland,	Willow Springs.
John Robert Sams,	Mars Hill.
Robert Norman Sharpe,	Greensboro, R. 6.
Earlie Wright Smith,	Willow Springs, R.2.
Turner Lee Smith,	Raleigh, R. 4.
Needham Martin Stafford,	Winston-Salem, R.2.
Lloyd Hurst Swindell,	Raleigh.
John Emery Taylor,	High Point, R. 3.
Vestal Taylor,	White Plains.
Vestal Columbus Taylor,	Ararat, R. 1.
Leonidas Lafayette Thomas,	Jonesboro, R. 2.
Lewis Ervan Thomas,	Thomasville, R. 4.
Alpheus Thompson,	Henderson, R. 4.
James Lee Walthall,	Harrisburg, R. 3.
Byron Wilson,	Shelby, R. 1.
Pinkney Lawson Wilson,	Summerfield.
Hunter Worsham,	Yanceyville, R. 1.

SUMMER SCHOOL FOR DEMONSTRATION AGENTS.

August, 1914.

Name.	*Post Office.*	*County.*
C. R. Hudson,	Raleigh,	Wake.
T. E. Browne,	W. Raleigh,	Wake.
A. K. Robertson,	W. Raleigh,	Wake.
E. S. Millsaps,	Statesville,	Iredell.
T. D. McLean,	Aberdeen,	Moore.
R. W. Freeman,	Wilson,	Wilson.
Bruce Anderson,	Winston-Salem,	Forsyth.
E. H. Anderson,	Greensboro,	Guilford.
J. A. Arey,	Elmwood,	Iredell.
R. C. Barrett,	Carthage,	Moore.
M. A. Bennett,	Jackson Springs,	Montgomery.
S. R. Bivens,	Henderson,	Vance.
A. J. Blankenship,	Yanceyville,	Caswell.
J. A. Boone,	Lumberton,	Robeson.
T. J. W. Broom,	Monroe,	Union.
W. C. Boone,	Kinston,	Lenoir.
F. A. Brown,	Wilson,	Wilson.
E. D. Bowditch,	Toecane,	Mitchell.
G. W. Byars,	Hamlet,	Richmond.
J. W. Cameron,	Polkton,	Anson.
W. H. Chamblee, Jr.	Zebulon,	Wake.
S. E. Coble,	Ashboro,	Randolph.
A. D. Cromartie,	Garland,	Bladen.
W. B. Crumpton,	Salisbury,	Rowan.
McD. Davis,	Clinton,	Sampson.
J. C. Dobbins,	Marler,	Yadkin.
E. M. Fearington,	Riggsbee,	Chatham.
J. D. Fletcher,	Fayetteville,	Cumberland.
B. P. Folk,	Gastonia,	Gaston.
H. K. Foster,	Newton,	Catawba.
R. M. Gidney,	Shelby,	Cleveland.
G. M. Goforth,	Lenoir,	Caldwell.
R. D. Goodman,	Concord,	Cabarrus.
R. W. Graeber,	Charlotte,	Mecklenburg.
J. M. Gray,	Durham,	Durham.
T. J. Harris,	Louisburg,	Franklin.
J. J. Hendren,	Chadbourn,	Columbus.
A. G. Hendren,	Straw,	Wilkes.
J. H. Henley,	Sanford,	Lee.

Name.	*Post Office.*	*County.*
J. P. Herring,	Wilmington,	New Hanover.
G. H. Highsmith,	Currie,	Pender.
W. P. Holt,	Danbury,	Stokes.
E. P. Josey,	Laurinburg,	Scotland.
J. W. Johnson,	Mount Airy,	Surry.
J. F. Latham,	Surry,	Beaufort.
J. E. Mewborn,	Snow Hill,	Green.
D. J. Middleton,	Warsaw,	Duplin.
Zeno Moore,	Whitakers,	Edgecombe.
J. A. Morris,	Oxford,	Granville.
F. B. Newell,	Warrenton,	Warren.
J. A. Patterson,	Airle,	Halifax.
F. E. Patton,	Burnsville,	Yancey.
E. L. Perkins,	Hendersonville,	Henderson.
J. R. Sams,	Mars Hill.	Madison.
J. W. Sears,	Vanceboro,	Craven.
N. B. Sewell,	Ahoskie,	Hertford.
A. L. Siler,	Franklin,	Macon.
J. B. Steele,	Lexington,	Davidson.
R. O. Suddath,	Albemarle,	Stanley.
J. A. Turlington,	Salemburg,	Sampson.
W. H. Tuflington,	Duke,	Harnett.
E. C. Turner,	Mebane,	Alamance.
F. S. Walker,	Reidsville,	Rockingham.
E. D. Weaver,	Weaverville,	Buncombe.
P. C. Williams,	Chapel Hill,	Orange.

SUMMARY.

By Classes.

Graduate	33
Senior	61
Junior	99
Sophomore	120
Freshman	242
Short Courses:	
Agricultural, 2 years	21
Mechanic Arts, 2 years	23
Textile, 2 years	8
Agricultural, 1 year	12
Agricultural, work, 2 years	20
Veterinary, 2 years	6
Agricultural, winter, 4 weeks	45
Summer School	12
Total	702

By Courses.

Agricultural, including short courses in agriculture and veterinary science	315
Chemical	18
Civil Engineering	94
Mechanical Engineering, including Mechanic Arts	107
Electrical Engineering	112
Textile, including short courses	56
Total	702
Summer School for Demonstration Agents	65

TWENTY-FIFTH ANNUAL COMMENCEMENT.

MAY 26, 1914.

DEGREES CONFERRED.

BACHELOR OF SCIENCE.

In Agriculture.

Clare Russell Bailey,
Hugh Marcellus Bailey,
Thomas Levingston Bayne, Jr.,
Enos Clarkson Blair,
Charles Meekins Brickhouse,
Harley Wilson Bullard,
Robert Olin Caldwell,
Walter Graham Caldwell,
Edwin Lacy Coble,
Woodfin Grady Credle,
Samuel Frederick Davidson,
James Roscoe Franck,
John Isaac Handley,
Lacy John,
William Dixon Lewis,
William Bennett Little,
Harvey Campbell McPhail,
Joseph Edgar Michael,
Thomas Guy Monroe,
Henry Kollock Nash, Jr.,
Fitzgerald Elizur Patton,
Henry Marriott Philips,
Tracy Winchester Porter,
Millard Reed Quinerly,
Daniel Ernest Roberts,
John Morgan Roberts,
Joe William Ross.

In Chemistry.

John Bartlett Fearing,
Warren Lafayette Moody,
Frederick Davis Poisson.

BACHELOR OF ENGINEERING.

In Civil Engineering.

Herman Von Biberstein,
Victor Winfred Breeze,
Leland Miot Craig,
Archie Jay Doolittle,
William Henry Griffin, Jr.,
John Harvey, Jr.,
William Leon Jewell,
Sir Keith Keller,
Paul King,
Douglas Allen Leard,
Marion Lamar Livermon,
Thomas Robert McDearman,
William Robert Patton,
Daniel Wood Thorp, Jr.,
James Richard Townsend,
Owen Zelotes Wrenn.

In Electrical Engineering.

Bascum Otto Austin,
James Ramsey Buchanan,
Archie Arrington Farmer,
Karl McAtee Fetzer,
James Fontaine,
Ralph Allison Gill,
Frank Bullock Morton,
Thomas Winston Nicholls,
Robert Avery Plyler,
John Bartow Rees,
Emory Pell Rouse,
Walter Herbert Smith,
Zebulon Whitehurst Taylor,
Clyde Loreine Vann,
James Wiggins Watts, Jr.,
Edward Howerton Weatherspoon

In Mechanical Engineering.

Charles Sidney Andrews,
Graham Hudson Anthony,
David Davies Cox,
St. John Cox,
Jesse Francis Huette,
William Tisdale Hurtt,
Willis Neal Johnston,
William Manly Jones,
Edgar Byron Nichols,
Milton Vance Perry,
Arthur Jefferson Phillips, Jr.,
William Owen Potter,
Thurman Lester Roberson,
John Franklin Schenck, Jr.

In Textile Industry.

John George Harvey Geitner, Jr.,
James Edgar McNeely,
William Thomas Shaw, Jr.

MASTER OF SCIENCE.

In Agriculture.

Edgar Allan Hodson.

In Chemistry.

Alexander Littlejohn Feild.

ELECTRICAL ENGINEER.

Gordon Harris.

HONORS.

HONORS IN SCHOLARSHIP.

For Four Years.

C. R. Bailey,
V. W. Breeze,
J. R. Buchanan,
James Fontaine,
M. L. Livermon.
M. R. Quinerly,
D. E. Roberts,

FOR 1913-1914.

Senior Class.

C. R. Bailey,
T. L. Bayne, Jr.,
V. W. Breeze,
J. R. Buchanan,
R. O. Caldwell,
D. D. Cox,
A. J. Doolittle,
K. M. Fetzer,
J. Fontaine,
L. John,
M. L. Livermon,
J. E. Michael,
M. R. Quinerly,
D. E. Roberts,
J. M. Roberts,
D. W. Thorp, Jr.

Junior Class.

B. M. Blount,
J. C. Carpenter,
C. P. Eldridge,
R. H. Feild,
A. C. Fluck,
R. P. Harris,
J. S. Howard,
G. L. Jeffers,
F. K. Kramer,
W. D. Martin,
J. D. Ray,
H. Spencer,
B. White,
F. E. Wysong.

Sophomore Class.

C. S. Abernethy,
W. C. Albright,
J. V. Champion,
S. G. Crater,
K. L. Greenfield,
E. K. Herman,
R. H. Hodges,
J. D. Miller,
H. Rankin,
L. B. Ray,
R. M. Ritchie,
P. A. Roberts,

Freshman Class.

R. V. Davis,
J. E. Ivey,
G. H. Lawrence,
N. H. Loftin,
G. K. Middleton,
W. W. Riddick,
W. K. Scott,
P. McK. Williams.

Two-Year Course in Agriculture.

G. F. Miller.

Honors for Punctuality.

H. M. Alexander,
W. M. Andrews,
W. R. Britt,
J. C. Carpenter,
S. M. Credle,
A. G. Day,
A. C. Fluck,
E. K. Herman,
F. J. Haight,
D. L. Hooper,
G. L. Jeffers,
W. P. Kennedy,
W. D. Martin,
W. E. Matthews,
M. B. Maynard,
E. W. Miller,
J. C. Perry,
J. H. Poole,
C. L. Ramseur,
W. H. Ross,
C. R. Russell,
R. B. Stotesbury
M. G. Vann,
L. E. Wooten,
C. P. Wrenn.

REGISTER OF ALUMNI.

Name.	*Degree.*	*Address.*
DURANT STEWART ABERNETHY,	B.E. 1906,	Charlottesville, Va.
Resident Engineer, Southern Railway.		
LEROY FRANKLIN ABERNETHY,	B.Agr. 1905,	Hickory, N. C.
Abernethy Hardware Company.		
NELSON ADAMS,	B.E. 1904,	McColl, S. C.
Farmer.		
HAYWOOD LEWIS ALDERMAN,	B.E. 1904,	Greensboro, N. C.
Division Superintendent in Operating Department, Southern Power Co.		
KEMP ALEXANDER,	B.E. 1900,	Asheboro, N. C.
Superintendent Acme Hosiery Mills.		
NEILY ORMOND ALEXANDER,	B.S. 1912,	Matthews, N. C.
Farmer.		
WILLIAM DAVIDSON ALEXANDER, JR.,	B.S. 1899,	Charlotte, N. C.
Civil and Hydraulic Engineer, and Engineer Mecklenburg Drainage Commission.		
DANIEL ALLEN,	B.S. 1896,	Raleigh, N. C.
Farming and Real Estate.		
GEORGE GILDEROY ALLEN,	B.E. 1906,	Concord, N. C.
Overseer of Carding, Gibson Mfg. Co.		
LESLIE LYLE ALLEN,	B.E. 1900,	Spartanburg, S. C.
Cotton Merchant.		
ROBERT WILSON ALLEN,	B.E. 1893,	Sanford, N. C.
Superintendent of Schools.		
LEWIS ALLEN AMMON,	B.S. 1913,	Escuela, Ariz.
Farmer, Tucson Indian Training School.		
CHARLES SIDNEY ANDREWS,	B.E. 1914,	Raleigh, N. C.
Mechanic, with Southern School Supply Company.		
GRAHAM HUDSON ANTHONY,	B.E. 1914,	Taunton, Mass.
With Mason Machine Works.		
JOHN CAMILLUS APP,	B.S. 1908,	Charleston, W. Va.
Director Hygienic Laboratory, City Department of Health.		
JOHN ALLEN AREY,	B.S. 1909,	Elmwood, N. C.
M.S., 1910. Assistant in Dairying, U. S. Department of Agriculture.		
GILBERT LUTHER ARTHUR, JR.,	B.S. 1913,	Raleigh, N. C.
DORSEY FROST ASBURY,	B.S. 1898,	Washington, D. C.
Ordnance Engineer, U. S. Ordnance Co.		
GEORGE PAGE ASBURY,	B.E. 1906,	Washington, D. C.
Engineer, Draftsman, Southern Railway.		

Name.	*Degree.*	*Address.*
SAMUEL ERSON ASBURY,	B.S. 1893,	College Station, Tex.

M.S. 1896. Assistant State Chemist.

SYDNEY WOODWARD ASBURY, B.E. 1904, Charlotte, N. C.
Heating Engineer and Architectural Draftsman, with Louis H. Asbury, Architect.

THOMAS MARTIN ASHE,† B.E. 1895, Raleigh, N. C.

BASCUM OTTO AUSTIN, B.E. 1914, Wilkinsburg, Pa.
Apprentice to Westinghouse Electric and Manufacturing Co.

ROBERT JAMES AVERY, B.Agr. 1905, Morganton, N. C.
Avery Brothers, Railroad Contractors.

ROBERT KENNETH BABINGTON, B.E. 1910, Gastonia, N. C.
Engineering Department, Piedmont Telephone and Telegraph Co.

CHARLES ALBION BACHE, B.E. 1913, Lynn, Mass.
Testing Department, General Electric Co.

OSCAR LUTHER BAGLEY, B.S. 1905, New Bern, N. C.
Baggage Agent and Ticket Clerk, Union Passenger Station.

EUGENE CLEVELAND BAGWELL, B.E. 1904, Norfolk, Va.
President's Assistant, Seaboard Air Line Railway.

CLARE RUSSELL BAILEY, B.S. 1914, Chadbourn, N. C.
Farm Manager for Elroy Bailey.

EDWARD PAR BAILEY, B.E. 1904, Wilmington, N. C.
President Wilmington Iron Works and General Manager Marine Railway Co.

HUGH MARCELLUS BAILEY, B.S. 1914, Woodleaf, N. C.
Farmer.

ROGER MOORE BAILEY, B.S. 1913, Elm City, N. C.
Bookkeeper for John L. Bailey.

WILLIAM BAILEY, B.E. 1911, Cheraw, S. C.
With Yadkin River Power Company.

FRANK OSCAR BALDWIN, B.S. 1908, Richmond, Va.
Director of Settling Basins and Laboratory, Richmond City Waterworks.

WILLIAM HERBERT DOUGHTY BANCK, B.E. 1909, Wilmington, N. C.
Civil Engineer.

IRA WILSON BARBER, B.S. 1899, Mount Airy, N. C.
Superintendent Electric Light and Power Plant and Waterworks.

JAMES CLAUDIUS BARBER, B.E. 1904, Barber, N. C.
Farmer.

TOLLIE CHESTER BARBER, B.E. 1911, Cliffside, N. C.
With Cliffside Mills.

WILLIAM WALTER BARBER, B.E. 1904, Marks, Miss.
With Riverside Lumber Co.

FLETCHER HESS BARNHARDT, B.E. 1901, Phœnixville, Pa.
Assistant Engineer, the Phœnix Bridge Co.

† Deceased.

Name.	*Degree.*	*Address.*
WILLIAM ALEXANDER BARRETT,	B.E. 1904,	Missoula, Montana.
Electrical Engineer, Missoula Light and Water Co.		
GEORGE FRANCIS BASON,	B.E. 1908,	Ithaca, N. Y.
Student, Cornell University.		
HERBERT SCANDLIN BATTIE,	B.E. 1907,	Philadelphia, Pa.
Resident Engineer, Scofield Eng. Co. Home Address, Greensboro, N. C.		
THOMAS LEVINGSTON BAYNE, JR.,	B.S. 1914,	Lillington, N. C.
Agriculturist and Principal Lillington Farm Life School.		
JOHN MANN BEAL,	B.S. 1911,	Agr. College, Miss.
M.S. 1913, Miss. A. & M. Assistant Botanist, Miss. Agricultural and Mechanical College. Plant Pathology work with Miss. Agr. Exp. Station.		
JAMES CLAUDIUS BEAVERS,	B.Agr. 1906,	Lafayette, Ind.
Associate in Soils and Crop Extension, Purdue Agricultural Exp. Station.		
SIDNEY HAMILTON BECK,*	B.S. 1898,	Washington, D. C.
JOHN LELAND BECTON,	B.E. 1908,	Wilmington, N. C.
C.E., 1913. Civil Engineer.		
HARWOOD BEEBE,	B.E. 1908,	Aquadale, N. C.
CHARLES EDWARD BELL,	B.S. 1911,	Raleigh, N. C.
Assistant Food Chemist, N. C. Department of Agriculture.		
NEEDHAM ERIC BELL,	B.S. 1906,	Montgomery, Ala.
Soil Surveyor, State of Alabama.		
WILLIAM OSBORNE BENNETT, JR.,	B.E. 1901,	Maxton, N. C.
Manager Elba Manufacturing Co.		
ROBERT LINN BERNHARDT,	B.S. 1900,	Salisbury, N. C.
Secretary-Manager Salisbury Hardware and Furniture Co.		
LESLIE GRAHAM BERRY,	B.E. 1900,	Charlotte, N. C.
Manager Southern Engineering Co.		
HERMAN VON BIBERSTEIN,	B.E. 1914,	Laurel, Miss.
Draftsman, New Orleans, Mobile and Chicago Railroad.		
JOHN HENDERSON BIRDSONG,	B.S. 1899,	Chicago, Ill.
Chief Chemist and Metallurgist, the National Malleable Castings Co.		
JOE PITTMAN BIVENS,	B.E. 1907,	Charlotte, N. C.
Member of firm of Michael & Bivens, Electrical Construction.		
JAMES ADRIAN BIZZELL,	B.S. 1895,	Ithaca, N. Y.
M.S. 1900. Ph.D. 1903, Cornell Univ. Prof. Soil Technology, N. Y. State College of Agriculture.		
FRED MCCULLOUGH BLACK,	B.E. 1910,	Wilkinsburg, Pa.
Erecting Department, Westinghouse Electric and Manufacturing Co.		
KENNETH LEON BLACK,	B.E. 1906,	Richmond, Va.
K. L. Black & Co., Engineers and General Contractors.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
WILLIAM LAMAR BLACK,	B.E. 1908,	Charlotte, N. C.
With Southern Power Co.		
ENOS CLARKSON BLAIR,	B.S. 1914,	West Raleigh, N. C.
Assistant Agronomist in Soils, N. C. Agricultural Experiment Station.		
JOHN ISHAM BLOUNT,	B.E. 1895,	Birmingham, Ala.
C.E. 1897. With J. I. Blount & Co., and the Blount Specialty Co.		
WILLIAM MORTON BOGART,	B.E. 1903,	Dallas, Tex.
Contracting Engineer, General Fire Extinguisher Co. of Texas.		
ALLISON HODGES BOND,	B.E. 1912,	Salisbury, N. C.
Real Estate, Insurance, Investments.		
THOMAS SAWYER BOND,	B.E. 1910,	Laredo, Tex.
Resident Engineer Texas-Mexican Railway Co. Home Address, Windsor, N. C.		
LESLIE NORWOOD BONEY,	B.E. 1903,	Goldsboro, N. C.
Architect.		
FRED. WILHELM BONITZ,	B.E. 1901,	Wilmington, N. C.
Lawyer, Engineering Department of Standard Oil Co.		
HENRY EMIL BONITZ,	B.E. 1893,	Wilmington, N. C.
Architect.		
WILLIAM DAVID BOSEMAN,	B.E. 1902,	Rocky Mount, N. C.
Farmer, with R. H. Ricks.		
ZOLLY MOSBY BOWDEN,	B.E. 1901,	Mulberry, Fla.
Electrician, Florida Mining Co.		
EDWIN DENNIS BOWDITCH,	B.S. 1913,	Toecane, N. C.
Agent Farmers' Coöperative Demonstration Work.		
ROY BOWDITCH,	B.E. 1910,	Pittsfield, Mass.
Assistant, Transformer Testing Department, General Electric Co.		
ALAN THURMAN BOWLER,	B.E. 1912,	Raleigh, N. C.
Paying Teller, Citizens National Bank.		
ASA GRAY BOYNTON,	B.E. 1908,	Biltmore, N. C.
Civil Engineer, Biltmore Estate.		
CARL RAY BRADLEY,	B.E. 1910,	St. Louis, Mo.
Motor Engineering Department, Wagner Electric Manufacturing Co.		
JAMES WASHINGTON BRAWLEY,	B.S. 1895,	Greensboro, N. C.
Secretary and Treasurer Real Estate and Trust Co.		
JOHN BENJAMIN BRAY,	B.E. 1911,	Raleigh, N. C.
Highway and Municipal Engineer.		
VICTOR WINFRED BREEZE,	B.E. 1914,	Durham, N. C.
Engineer for J. T. Salmon, Contractor.		
THOMAS JOHNSON BREVARD,*	B.S. 1910,	Fair View, N. C.
CHARLES MEEKINS BRICKHOUSE,	B.S. 1914,	Zebulon, N. C.
Teacher of Agriculture at Wakelon Farm Life School.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
HERMON BURKE BRIGGS,	B.E. 1913,	Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
BENJAMIN ALEXANDER BROOM,	B.E. 1905,	Sioux City, Iowa.
Mechanical Engineer.		
CECIL DEWITT BROTHERS,	B.E. 1909,	Sao Paulo, S. P., Brazil.
With Brazilian Railways.		
BEDFORD JETHRO BROWN,	B.E. 1901,	Charlotte, N. C.
In Charge of Meter Department, Southern Power Co.		
CLAYTON EDWARD BROWN,	B.E. 1912,	Elgin, Tenn.
Masonry Inspector, New Orleans and Texas Pacific R. R. Co.		
FRANK HAMILTON BROWN,	B.Agr. 1908,	Cullowhee, N. C.
Teacher of Science and Agriculture, Cullowhee Normal and Industrial School.		
JOEL EDWARD BROWN,*	B.S. 1911,	Grimes, Cal.
Clerk, Smith Co.		
JAMES HOWARD BROWN,	B.S. 1911,	Holton, Kas.
M.S., 1912. D.V.M., Kansas City Veterinary College. County Secretary Y. M. C. A., Jackson County, Kansas.		
WILLIAM BACHMAN BROWN,	B.E. 1911,	Glass, N. C.
Interstate Commerce Commission, Railway Valuation.		
STEPHEN COLE BRUNER,	B.S. 1912,	Raleigh, N. C.
THOMAS KINCAID BRUNER,	B.E. 1910,	Sheffield, Ala.
Chief Clerk to Master Mechanic, Southern Railway.		
CARNEY JOHN BRYAN,	B.E. 1907,	Panama City, Fla.
Wholesale Fish Dealer.		
GUY KEDAR BRYAN,	B.E. 1911,	Jacksonville, Fla.
JOHN HARVEY BRYAN	B.E. 1908,	Wilkinsburg, Pa.
M.E. 1913. Sales Dept., Westinghouse Electric and Mfg. Co.		
KIT BRYAN,	B.E. 1911,	Manila, P. I.
Surveyor, Bureau of Lands.		
JAMES RAMSEY BUCHANAN,	B.E. 1914,	Schenectady, N. Y.
Electrical Engineer, General Electric Co.		
ELTON ELROY BUCK,	B.E. 1910,	Bridgeport, Conn.
Block Map Department, City Engineer's Office.		
JOSEPH SAMUEL BUFFALOE,	B.S. 1897,	Garner, N. C.
Physician.		
HARLEY WILSON BULLARD,	B.S. 1914,	West Raleigh, N. C.
Division of Markets, N. C. Agricultural Experiment Station.		
JOEL W. BULLOCK,	B.Agr. 1905,	Dabney, N. C., R. 1.
Farmer.		

* Not heard from this year.

Name.	*Degree.*	*Address.*

WALTER AUSTIN BULLOCK, B.S. 1895, Cayey, Porto Rico.
Division Superintendent, Porto Rico-American Tobacco Co.

JAMES HARRY BUNN, B.E. 1900, Henderson, N. C.
Superintendent Henderson Cotton Mills and Croatan Spinning Mills.

WILLIAM BRYANT BURGESS, B.E. 1908, Portsmouth, Va.
Electrical Draftsman, Government Navy Yard, Norfolk.

WILLIAM ANDERS BUYS, B.E. 1906, Belhaven, N. C.
Civil Engineer, the Interstate Cooperage Co.

VON PORTER BYRUM, B.E. 1911, Fort Lauderdale, Fla.
Chief Engineer, Fort Lauderdale Ice and Electric Co.

BRICE LEGRIER CALDWELL, B.S. 1913, State College, Pa.
Agricultural Experiment Station, Pennsylvania State College.

ROBERT OLIN CALDWELL, B.S. 1914, High Point, N. C.
Assistant to Dr. A. C. Jones in Veterinary Medicine.

WALTER GRAHAM CALDWELL, B.S. 1914, Clarksdale, Ark.
Farmer for A. S. Clark.

LINDSAY FERGUSON CARLETON, B.E. 1907, Pittsburgh, Pa.
Sales Engineer H. W. Johns-Manville Co.

JOHN SAMUEL P. CARPENTER, B.E. 1903, Cherryville, N.C.
Member Board of Directors and Superintendent Melville Manufacturing Co.

JOHN WILLIAM CARROLL, B.S. 1897, Wallace, N. C.
Physician.

ROBERT HILL CARTER, B.E. 1907, La Fundicion, Peru, S. A.
Electrician Cerro De Pasco Mining Co.

HENRY BROZIER CARTWRIGHT, B.E. 1905, Jacksonville, Fla.
Assistant Engineer, Seaboard Air Line Ry.

HENRY ROY CATES, B.S. 1911, Washington, D. C.
U. S. Department of Agriculture, Bureau of Plant Industry. Office of Farm Management.

JUNIUS SIDNEY CATES, B.S. 1902, Washington, D. C.
M.Agr., 1904. Agriculturist, Office of Farm Management, United States Department of Agriculture.

WILLIAM MILLER CHAMBERS, B.E. 1905, Maben, W. Va.
Pay Roll Man, W. M. Ritter Lumber Co.

MARK HOPKINS CHESBRO, B.Agr. 1906, Kelowna, B. C.
In Charge of Landscape Work for City of Kelowna.

CONNOR CALHOUN CLARDY, B.E. 1906, Los Angeles, Cal.
Los Angeles Office, General Electric Co.

CHARLES EDWARD CLARK, B.S. 1897, Rocky Mount, N. C.
Assistant Director Edgecombe Test Farm.

DAVID CLARK, B.E. 1895, Charlotte, N. C.
M.E. 1896; C. E. 1897. Owner and Editor *Southern Textile Bulletin.*

JAMES DUNCAN CLARK, B.S. 1906, Tampa, Fla.
President Peninsular Paper Co. Manager Ingleside Orange Groves.

Name.	*Degree.*	*Address.*
JOHN WASHINGTON CLARK,	B.E. 1906,	West Durham, N. C.

B.E. (Tex.) 1907. Superintendent Erwin Bleaching and Finishing Plant.

THORNE MCKENZIE CLARK, B.E. 1909, Fayetteville, N. C.
Cashier the Fourth National Bank.

WALTER CLARK, JR., B.E. 1903, Raleigh, N. C.
LL.B., 1905, University of North Carolina. LL.M. 1906, George Washington University. Lawyer.

WILLIAM ALEXANDER GRAHAM CLARK, B.S. 1897, Atlanta, Ga.
M.E. 1899. Commercial Agent U. S. Department of Commerce.

SAMUEL HERBERT CLARKE, B.E. 1906, Richmond, Va.
With H. Clarke & Sons.

HENRY CALEB CLAY, B.E. 1911, Eagle Butte, Mont.
Ranchman.

WILEY THEODORE CLAY, B.E. 1906, Rocky Mount, N. C.
With S. S. Toler, Builder.

AMOS BAXTER CLEMENT, B.E. 1913, Pittsburgh, Pa.
Testing Department, Westinghouse Electric and Manufacturing Co.

WILLIAM RANDOLPH CLEMENTS, B.E. 1913, Wilkinsburgh, Pa.
Student Apprentice, Westinghouse Electric and Mfg. Co.

EDWIN LACY COBLE, B.S. 1914, Raleigh, N. C.
Member Firm J. L. O'Quinn Co., Florists.

ROBERT BAXTER COCHRAN, B.E. 1902, Norwood, Ohio.
Chief Inspector, Bullock Electric Manufacturing Co.

ANSON ELIKEM COHOON, B.S. 1898, Portland, Oregon.
Forest Supervisor, Forest Service, U. S. Department of Agriculture.

JOHN ELIOT COIT, B.Agr. 1903, Berkeley, Cal.
Professor of Citriculture and Semitropical Pomology, University of California.

THOMAS ALEXANDER COLE, B.S. 1913, Carthage, N. C.
Farmer.

PAUL COLLINS, B.S. 1901, New Haven, Conn.
Analytical and Consulting Chemist.

JOHN DOWNIE COOPER, JR., B.E., Henderson, N. C.
Superintendent Harriet Cotton Mills No. 2, Henderson, N. C.

GEORGE WASHINGTON CORBETT, JR., B.E. 1895, Currie, N. C., R. 2.
Saw, Planing and Grist Mills.

SUMMEY CROUSE CORNWELL, B.E. 1903, Hickory, N. C.
City Manager.

CHARLES EDWARD CORPENING, B.E. 1894, Lenoir, N. C., R. 3.
Farmer and Lumber Dealer.

LLEWELLYN HILL COUCH, B.E. 1908, Hartwell, Ga.
Construction Department, Franklin Light and Power Co.

Name.	*Degree.*	*Address.*
WALTER MILLER COWLES,	B.E. 1909,	Pittsburgh, Pa.
Automobile Service Department, Westinghouse Electric and Mfg. Co		
DAVID COX,	B.E. 1894,	Hertford, N. C.
Civil Engineer and Timber Dealer and Estimator.		
DAVID DAVIES COX,	B.E. 1914,	Raleigh, N. C.
With Raleigh Iron Works.		
DUNCAN ARCHIBALD COX,	B.S. 1906,	Rowland, N. C.
Secretary-Treasurer and Salesman, Pleasant-Cox Hardware Co.		
SAINT JOHN COX,	B.E. 1914,	Cullowhee, N. C.
LELAND MIOT CRAIG,	B.E. 1914,	Phoenixville, Pa.
Draftsman, Phœnix Bridge Co.		
WILLIAM PESCUD CRAIG,	B.S. 1901,	Marion, N. C.
JOHN BENNETT CRAVEN,	B.S. 1913,	Chicago, Ill.
Chemist, People's Gas, Light and Coke Co.		
WILLIAM LOIS CRAVEN,	B.E. 1901,	Concord, N. C.
Engineer and Contractor.		
CHARLES LESTER CREECH,	B.S. 1903,	Winston-Salem, N. C.
Sales Manager, J. C. Spach Wagon Works.		
WOODFIN GRADY CREDLE,	B.S. 1914,	Swan Quarter, N. C.
Farmer for Grady Brinn.		
ALEXANDER DOANE CROMARTIE,	B.Agr. 1906,	Garland, N. C.
Farmer; County Agent of Farmers' Coöperative Demonstration Work.		
WILLIAM HENRY CROW,	B.E. 1910,	Dillon, S. C.
Superintendent Water, Light, Power, and Sewer.		
CHARLES LEE CRUSE,	B.S. 1912,	Statesville, N. C.
Veterinarian.		
FELIX GRAY CRUTCHFIELD,	B.E. 1901,	Winston-Salem, N. C
Salesman, Atlantic Refining Co., Cleveland, Ohio.		
EUGENE ENGLISH CULBRETH,	B.E. 1903,	Raleigh, N. C.
With Commercial National Bank.		
HUGH MCCULLOM CURRAN,	B.S. 1898,	Buenos Aires.
Forestry Service, Argentine Government.		
LISTON LLOYD DAIL,	B.S. 1913,	Ensley, Ala.
Chemist, Tennessee Coal, Iron and Railroad Co.		
EDWIN SPEIGHT DARDEN,	B.S. 1895,	Stantonsburg, N. C.
Farmer; Bookkeeper for Stantonsburg Supply Co.		
WALTER LEE DARDEN,	B.E. 1903,	Portsmouth, Va.
Engineer of Buildings, Seaboard Air Line Railway.		
JOSEPH FRANK DAVIDSON,	B.E. 1909,	Pedro Miguel, C.Z., Pan.
SAMUEL FREDERICK DAVIDSON,	B.S. 1914,	Swannanoa, N. C.
Assistant State Test Farm.		

Name.	*Degree.*	*Address.*
GEORGE MASLIN DAVIS,	B.E. 1901,	Roanoke, Va.
Draftsman, Mechanical Engineer's Office, N. & W. Ry.		
PAUL DEXTER DAVIS,	B.E. 1913,	Raleigh, N. C.
District Traffic Chief, Southern Bell Telephone and Telegraph Co.		
WILLIAM EARLE DAVIS,	B.E. 1910,	Connelly Sprgs., N. C.
Clerk Connelly Mineral Springs Hotel.		
WILLIAM HENRY DAVIS,	B.E. 1911,	Schenectady, N. Y.
With General Electric Co.		
WILLIAM KEARNEY DAVIS,	B.E. 1895,	Marion, S. C.
Superintendent Marion Manufacturing Co.		
CLAUD COUNCIL DAWSON,	B.E. 1908,	Mayesworth, N. C.
With Mayes Manufacturing Co.		
THOMAS THEODORE DAWSON,	B.E. 1910,	New Bern, N. C.
With New Bern Veneer and Panel Co.		
RALPH CAMPBELL DEAL,	B.E. 1912,	Schenectady, N. Y.
Student, General Electric Co.		
WILLIAM SAMUEL DEAN,	B.E. 1909,	Washington, D. C.
Assistant Cotton Technologist, Bureau of Plant Industry, U. S. Department of Agriculture.		
ERNEST COFIELD DERBY,	B.E. 1912,	Winston-Salem, N. C.
Engineer for J. N. Ambler. Home Address, Roseboro, N. C.		
LOUIS REINHOLD DETJEN,	M.S. 1911,	West Raleigh, N. C.
N. C. Agricultural Experiment Station.		
EDWIN SEXTON DEWAR,	B.S. 1911,	Raleigh, N. C.
Assistant Chemist, North Carolina Department of Agriculture.		
JOSEPH CHARLES DEY,*	B.S. 1895,	Norfolk, Va.
JUNIUS FRANKLIN DIGGS,	B.S. 1903,	Rockingham, N. C.
Planter and Merchant.		
ARCHIE JAY DOOLITTLE,	B.E. 1914,	Passaic, N. J.
Member Firm John A. Doolittle & Co.		
CARLTON O'NEAL DOUGHERTY,	B.E. 1909,	North, S. C.
Farmer.		
McNEELY DU BOSE,	B.E. 1912,	Barcelona, Lerida, Spain.
Erecting Engineer, Pearson Engineering Co. Home Address, Morganton, N. C.		
FRED. ATHA DUKE,	B.E. 1909,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
JAMES LEONIDAS DUNN,	B.S. 1910,	Scotland Neck, N. C.
Farmer.		
ALVIN DEANS DUPREE,	B.E. 1908,	Greenville, N. C.
Manager Insurance Department, Moseley Brothers' Agency.		
RAYMOND ROWE EAGLE,	B.E. 1908,	New Bern, N. C.
Civil Engineer.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
MINNIC LUTHER EARGLE	B.Agr. 1908,	Vanceboro, N. C.
Instructor in Agriculture, Craven County Farm Life School.		
JOHN IVEY EASON,	B.S. 1911,	Stantonsburg, N. C.
Farmer.		
JACOB TATUM EATON,†	B.Agr. 1907,	Farmington, N. C.
WILLIAM HUNT EATON,	B.S. 1909,	Raleigh, N. C.
Dairy Experimentalist, N. C. Experiment Station.		
LATTA VANDERION EDWARDS,	B.E. 1906,	Pullman, Wash.
C. E. 1911, Cornell Univ. Prof. of Railroad and Highway Engineering, Washington State College.		
SEBA ELDRIDGE,	B.E. 1907,	Brooklyn, N. Y.
Secretary Department of Social Betterment, Brooklyn Bureau of Charities.		
TIMOTHY ELDRIDGE,	B.E. 1904,	Mount Olive, N. C.
Superintendent Electric Light Plant and Waterworks.		
THEOPHILUS THOMAS ELLIS,	B.E. 1903,	Henderson, N. C.
Farmer.		
WELDON THOMPSON ELLIS,	B.E. 1906,	West Raleigh, N. C.
M.E., 1908. Associate Professor of Machine Design and Applied Mechanics, N. C. College of Agriculture and Mechanic Arts.		
LEE BORDEN ENNETT,	B.S. 1895,	Cedar Point, N. C.
Superintendent of County Public Schools, and Farmer.		
ALBERT EDWARD ESCOTT,	B.E. 1906,	Charlotte, N. C.
Secretary and Treasurer, The Mill News.		
WILLIAM CARLYLE ETHERIDGE,	B.Agr. 1906,	Ithaca, N. Y.
M.S. 1908. Graduate Student and Assistant in Cornell University.		
EARL MONTIER EVANS,	B.E. 1913,	Raleigh, N. C.
BENJAMIN BRYAN EVERETT,	B.Agr. 1907,	Palmyra, N. C.
M.S. 1912, University of Wisconsin. Farmer.		
JAMES BECKETT EWART,	B.E. 1906,	Harthorne Station, Chicago, Ill.
Western Electric Co.		
RALPH RINGGOLD FAISON,	B.S. 1909,	Goldsboro, N. C.
WILLIAM ALEXANDER FAISON,	B.E. 1909,	Indiana Harbor, Ind.
Superintendent No. 2 Foundry, American Steel Foundries.		
ARCHIE ARRINGTON FARMER,	B.E. 1914,	Wilson, N. C.
ISAAC HERBERT FARMER,	B.E. 1908,	Portsmouth, Va.
Right of Way Engineer, Seaboard Air Line Railway.		
JAMES WILLIAM FARRIOR,	B.E. 1904,	Kenansville, N. C.
Physician.		
WILLIAM DOLLISON FAUCETTE,	B.E. 1901,	Norfolk, Va.
C. E. 1910. Chief Engineer, Seaboard Air Line Railway.		
ISAAC HENRY FAUST,	B.E. 1895,	Ramseur, N. C.
Farmer and Contractor.		

† Deceased.

Name.	*Degree.*	*Address.*
JOHN BARTLETT FEARING, JR.,	B.S. 1914,	Elizabeth City, N. C.
Farmer.		
ALEXANDER LITTLEJOHN FEILD,	M.S. 1914,	Wilkinsburgh, Pa.
Junior Chemist, U. S. Bureau of Mines.		
BENJAMIN CAREY FENNELL,	B.S. 1898,	Atlanta, Ga.
M.E., 1900. Engineer and Contractor. Southern Representative Nordberg Manufacturing Co., Milwaukee, Wis.		
JAMES LUMSDEN FEREBEE,	B.E. 1902,	Atlantic City, N. J.
With T. Chalkley Hatton, Consulting Engineer.		
PERCY BELL FEREBEE,	B.E. 1913,	Washington, D. C.
Transitman, U. S. Forest Service.		
BENJAMIN TROY FERGUSON,†	B.Agr. 1908,	Stantonsburg, N. C.
Farmer and Manager, Dr. S. H. Crocker.		
JOHN DANIEL FERGUSON,†	B.E. 1903,	Bladenboro, N. C.
JOHN LINDSAY FERGUSON,	B.E. 1907,	Paraiso, Canal Zone.
Mechanical and Electrical Draftsman, Panama Canal.		
KARL MCATEE FETZER,	B.E. 1914,	Rochester, N. Y.
Apprentice, General Railway Signal Co.		
NEVIN GOULD FETZER, †	B.S. 1912,	Concord, N. C.
WALTER GOSS FINCH,	B.E. 1905,	Wilmington, N. C.
Junior Engineer, U. S. Engineering Department.		
WILLIAM WALTER FINLEY,	B.Agr. 1904,	Charlottesville, Va.
Proprietor Win Wilkes Farm.		
DANIEL BURNIE FLOYD,	B.E. 1913,	Fairmont, N. C.
FRANK FULLER FLOYD,	B.E. 1893,	Knoxville, Tenn.
Vice-President and Sales Manager, Jellico Coal Mining Co.		
FRANK LINDSAY FOARD,	B.S. 1909,	Salisbury, N. C., R. 7.
Farmer.		
JAMES FONTAINE,	B.E. 1914,	Schenectady, N. Y.
Student Engineer, Testing Department, General Electric Co.		
RUFUS EUGENE FORBIS,	B.E. 1910,	Charlotte, N. C.
M.E., 1913. Draftsman, Peter S. Gilchrist, Consulting Engineer.		
HUGH PIERCE FOSTER, †	B.E. 1903,	Person County.
SHIRLEY WATSON FOSTER,	B.Agr. 1906,	San Francisco, Cal.
Entomologist and Manager Insecticide Department, General Chemical Co. of California.		
GEORGE WASHINGTON FOUSHEE,	B.E. 1904,	Greensboro, N. C.
Secretary and Treasurer, Dicks Laundry Co.		
ELIAS VAN BUREN FOWLER,	B.E. 1907,	Darlington, S. C.
Agent Metropolitan Life Insurance Co.		

† Deceased.

Name.	*Degree.*	*Address.*
Roscoe Loomis Fox,	B.E. 1909,	Kansas City, Mo.
Broker.		
Francis Marion Foy, †	B.S. 1899,	Scott's Hill, N. C.
Charles Duffy Francks,	B.E. 1893,	Richlands, N. C.
Superintendent Richlands Graded Schools.		
James Roscoe Franck,	B.S. 1914,	Richlands, N. C.
Farmer.		
George Stronach Fraps,	B.S. 1896,	College Station, Tex.
Ph.D., Johns Hopkins Univ. State Chemist of Texas. Chemist Texas Experiment Station. Chemist Texas Feed Control.		
Elmo Vernon Freeman,	B.E. 1911,	Bluefield, W. Va.
E.E. 1913. Salesman Westinghouse Electric Manufacturing Co.		
Percy Leigh Gainey,	B.Agr. 1908,	Manhattan, Kas.
M.S., 1910. Soil Bacteriologist, Kansas Agricultural Experiment Station.		
Edgar William Gaither,	B.S. 1904,	Philadelphia, Pa.
James Jervey Gantt,	B.E. 1910,	Charleston, S. C.
With Jefferson Construction Co.		
Junius Talmage Gardner,	B.E. 1908,	Shelby, N. C.
Railway Mail Service.		
Oliver Max Gardner,	B.S. 1903,	Shelby, N. C.
Lawyer.		
Clement Leinster Garner,	B.E. 1907,	Washington, D. C.
United States Coast and Geodetic Survey.		
Lewis Price Gattis,	B.E. 1909,	Charleston, S. C.
City Ticket Agent, A. C. L. Railway.		
John George Harvey Geitner, Jr.,	B.E. 1914,	McColl, S. C.
With Marlboro Cotton Mills.		
Edward Moore Gibbon,	B.E. 1893,	Jacksonville, Fla.
City Engineer for South Jacksonville.		
Nicholas Louis Gibbon,	B.S. 1897,	Southern Pines, N. C
General Hardware, Building Material and Auto Specialties.		
Seth Mann Gibbs,	B.E. 1908,	Savannah, Ga.
Resident Engineer, Seaboard Air Line Railway.		
Thomas Fenner Gibson,	B.E. 1912,	Charlotte, N. C.
Designer, Southern Power Co.		
Lamar Carson Gidney,	B.E. 1903,	High Point, N. C.
Superintendent Lighting Department, City of High Point.		
Richard F. Giersch, Jr.,	B.E. 1912,	Barcelona, Lerida, Spain.
Erecting Engineer for Riegos y Fuerza del Ebro, Seros Powerhouse. Home Address, Raleigh, N. C.		

† Deceased.

Name.	*Degree.*	*Address.*
LOVIC RODGERS GILBERT,	B.E. 1907,	Raleigh, N. C.
Superintendent Caraleigh Mills Co.		
RALPH ALLISON GILL,	B.E. 1914,	Statesville, N. C.
RANSOM EATON GILL, †	B.E. 1910,	Raleigh, N. C.
ROY JOSEPH GILL,	B.E. 1907,	Quartzite, Ariz.
With U. S. Land Office.		
GEORGE WILLIAM GILLETTE,	B.E. 1911,	Wilmington, N. C.
Master Mechanic, Tidewater Power Co.		
MAURICE MORDECAI GLASSER,	B.E. 1908,	Charleston, S. C.
Proprietor Standard Electric Co.		
JOHN HOWARD GLENN,†	B.E. 1903,	Crowder's Creek, N. C.
CHARLES WILLIS GOLD,	B.S. 1895,	Greensboro, N. C.
Treasurer Jefferson Standard Life Insurance Co.		
MOSES HENRY GOLD,	B.E. 1908,	Savannah, Ga.
Division Engineer, Seaboard Air Line Railway.		
ROY DURANT GOODMAN,	B.S. 1913,	Concord, R. 2, N. C.
Farm Demonstrator, Cabarrus County.		
CICERO FRED GORE,	B.E. 1913,	Weldon, N. C.
Assistant to Superintendent and Engineer Highways, Halifax County.		
ALBERT SIDNEY GOSS,	B.E. 1909,	Wilson, N. C.
With Brett Engineering and Contracting Co.		
JOHN DAVID GRADY,	B.Agr. 1908,	Seven Sprgs., R.1. N. C.
Farmer.		
ROBERT WALTER GRAEBER,	B.S. 1911,	Charlotte, N. C.
County Agent Farmers' Coöperative Demonstration Work.		
WILLIAM HAYWOOD GRAHAM, JR.,	B.E. 1912,	Macon, Ga.
District Traffic Chief, Southern Bell Telephone and Telegraph Co.		
ROBERT STRICKLER GRAVES,	B.E. 1907,	Cincinnati, Ohio.
District Meter Specialist, General Electric Co.		
CHARLIE POOL GRAY,*	B.E. 1909,	Avon, N. C.
Principal Avon School.		
GEORGE PENDER GRAY,*	B.S. 1893,	Tarboro, N. C.
JAMES MILLER GRAY,	B.S. 1910,	Cullasaja, N. C.
Farmer.		
STERLING GRAYDON,	B.E. 1905,	Charlotte, N. C.
Superintendent Atherton Mills.		
ANDREW HARTSFIELD GREEN, JR.,	B.S. 1909,	Raleigh, N. C.
With Commercial National Bank.		
MARION JACKSON GREEN,	B.S. 1896,	Charlotte, N. C.
———— Pattern-maker, the Cole Manufacturing Co.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
ARTHUR WYNNS GREGORY,	B.S. 1906,	Shanghai, China.
Sales Manager, Chinkiang Office, British-American Tobacco Co.		
PAUL STIREWALT GRIERSON,	B.E. 1904,	New York, N. Y.
Draftsman, Charles Cory & Son.		
WILLIAM HENRY GRIFFIN, JR.,	B.E. 1914,	Goldsboro, N. C.
Junior Member, W. H. Griffin & Son, Coal and Wood Dealers.		
JOSEPH PERRIN GULLEY, JR.,	B.E. 1904,	Norfolk, Va.
Manager Lighting Supplies Dept., Norfolk Building Supplies Corporation.		
EMIL GUNTER,*	B.E. 1903,	Boston, Mass.
WINSTON PAYNE GWATHMEY,	B.E. 1913,	Richmond, Va.
City Draftsman.		
DORSEY YATES HAGAN,	B.E. 1908,	Greensboro, N. C.
Surveyor.		
FELIX STANTON HALES,	B.E. 1913,	Ithaca, N. Y.
Student Cornell University. Home Address, Wilson, N. C.		
CHARLES GANZER HALL,	B.E. 1913,	Taunton, Mass.
With Whittington Manufacturing Co.		
HORACE LESTER HAMILTON,	B.E. 1906,	Baltimore, Md.
Advertising Manager, Electric Division, Gas and Electric Co.		
WILLIAM ROY HAMPTON,	B.S. 1909,	Plymouth, N. C.
Owner firm of W. H. Hampton & Son, Inc., Merchants and Bankers.		
LEROY CORBETT HAND,	B.E. 1913,	Chadbourn, N. C.
Vice-President Chadbourn Hardware Co.		
JOHN ISAAC HANDLEY,	B.S. 1914,	Charlotte, N. C.
Veterinarian.		
SAMUEL MERRILL HANFF,	B.S. 1900,	Wadesboro, N. C.
Episcopal Clergyman.		
JOHN FREDERICK HANSELMAN,	B.E. 1906,	Waverly, Va.
Proprietor the Central Garage.		
GEORGE ROM. HARDESTY,	B.E. 1907,	Goldsboro, N. C.
Chief Engineer, State Hospital.		
PHILIP WILLIAM HARDIE,	B.E. 1907,	Greensboro, N. C.
Surveyor.		
JARVIS BENJAMIN HARDING,	B.E. 1904,	Greenville, N. C.
C.E., 1909. Civil Engineer.		
ROBERT MCKENZIE HARDISON,	B.E. 1912,	New York, N. Y.
Student, Columbia University.		
NATHAN DAVID HARGROVE,	B.S. 1912,	Richmond, Va.
Manager A. W. Hargrove, Paints and Wall Papers.		
RICHARD HUGH HARPER,	B.S. 1905,	Patterson, N. C.
With Gwyn-Harper Manufacturing Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
GEORGE ROLAND HARRELL,	B.S. 1900,	Grasselli, N. J.
With Grasselli Chemical Co.		
JOHN WILLIAM HARRELSON,	B.E. 1909,	West Raleigh, N. C.
Instructor in Mathematics, N. C. College of Agriculture and Mechanic Arts.		
CEBURN DODD HARRIS,	B.S. 1897,	Anchorage, Ky.
Manager Burley Tobacco Manufacturing Co., of Louisville, Ky.		
GORDON HARRIS,	B.E. 1909,	Schenectady, N. Y.
E.E., 1914. Lighting Engineering Department, General Electric Co.		
THOMAS DEVIN HARRIS,	B.E. 1911,	Oxford, N. C.
Engineer and Surveyor.		
WILLIAM HENRY HARRIS,	B.E. 1895,	New York, N. Y.
M.E., 1896. Textile Broker.		
THOMAS ROY HART,	B.E. 1913,	Monroe, N. C.
HARRY HARTSELL,	B.E. 1912,	Indianapolis, Ind.
Telephone Specialist, Western Electric Co.		
JOHN HARVEY, JR.,	B.E. 1914,	Snow Hill, N. C.
Farmer.		
FRANK HAWKS,	B.E. 1910,	Wilmington, N. C.
Draftsman, Atlantic Coast Line R. R.		
EDMUND BURKE HAYWOOD,	B.E. 1910,	Raleigh, N. C.
Assistant to Commissioner of Public Works and City Engineer.		
THOMAS FREDERICK HAYWOOD,†	B.E. 1909,	Trenton, N. C.
JOKTAN LAFAYETTE HEMPHILL,	B.E. 1907,	Schenectady, N. Y.
Engineer, General Electric Co.		
LEONARD HENDERSON,	B.E. 1909,	Salisbury, N. C.
MAURICE HENDRICK,	B.E. 1908,	Cliffside, N. C.
Overseer Spinning, Cliffside Mills.		
LAWRENCE JAMES HERRING,	B.Agr. 1907,	Wilson, N. C.
Veterinarian. D.V.S., Kansas City Veterinary College.		
JERE. ISAAC HERRITAGE,	B.E. 1905,	Jacksonville, N. C.
Civil Engineer, John L. Roper Lumber Co.		
THOMAS JASPER HEWITT,	B.E. 1913,	New Bern, N. C.
With U. S. Engineering Department.		
CLARENCE WILSON HEWLETT,	B.E. 1906,	Baltimore, Md.
M.A., Ph.D., Johns Hopkins. Instructor in Physics, Johns Hopkins University.		
RUFUS WILLIAMS HICKS, JR.,	B.E. 1910,	New York, N. Y.
With Workmen's Compensation Service Bureau.		
BASCOMBE BRITT HIGGINS,	B.S. 1909,	Experiment, Ga.
M.S., 1910; Ph.D. 1913, Cornell University. Botanist, Georgia Agricultural Experiment Station.		

† Deceased.

Name.	*Degree.*	*Address.*

LYDA ALEXANDER HIGGINS, B.S. 1910, Brookhaven, Miss.
Agent in Dairying, Dairy Division, U. S. Department of Agriculture.

RILEY WEAVER HIGGINS, B.S. 1913, Rutherfordton, N. C.
Farmer for Drs. Norris & Biggs.

JAMES ALLAN HIGGS, JR., B.E. 1906, Knoxville, Tenn.
C.E., 1910. Engineer-Constructor Reinforced Concrete.

JERE. EUSTIS HIGHSMITH, B.S. 1897, Parkersburg, N. C.
Farmer.

DANIEL HARVEY HILL, JR., B.S. 1909, Charlotte, N. C.
Associate Editor, Southern Textile Bulletin.

DAVID RAYMOND HINKLE, B.E. 1911, Milstead, Ga.
Overseer Spinning, Milstead Mills.

GUY FRANCIS HINSHAW, B.E. 1907, Winston-Salem, N. C.
City Engineer of Winston-Salem.

GEORGE HERBERT HODGES, B.E. 1904, Fairchance, Pa.
Superintendent Kyle Mine, H. C. Frick Coke Co.

EDGAR ALLAN HODSON, M.S. 1914, West Raleigh, N. C.
Instructor in N. C. College of Agriculture and Mechanic Arts.

LABAN MILES HOFFMAN, JR., B.E. 1905, Dallas, N. C.
Cashier Bank of Dallas.

WILLIS ASKEW HOLDING, B.S. 1912, Raleigh, N. C.
With State Laboratory of Hygiene.

CHARLES BOLLING HOLLADAY, B.E. 1893, Wilmington, Del.
With E. I. du Pont de Nemours Powder Co.

PETER ARMSTRONG HOLT, B.S. 1913, Graham, N. C.
Office Clerk, L. Banks Holt Manufacturing Co.

WILLIAM NORMAN HOLT, B.E. 1907, Norfolk, Va.
Traveling Salesman, The Texas Co.

BENJAMIN OLIVER HOOD, B.E. 1901, New York, N. Y.
Structural Engineer, F. A. Burdett & Co., Consulting Engineers.

LOUIE LEE HOOD, B.E. 1910, Greensboro, N. C.
With Greensboro Music Co.

WALTER CLEARY HOPKINS, B.E. 1913, Baltimore, Md.
Draftsman, Maryland State Roads Commission.

WAYNE ARINGTON HORNADAY, B.S. 1909, Burlington, N. C.
M.S. 1910; D.V. M., Kansas City Veterinary College. Veterinarian.

JOHN HOWARD, B.S. 1896, Middlesboro, Ky.
Attorney at Law.

JESSE MCRAE HOWARD, B.E. 1904, Concord, N. C.
Overseer Dyeing, Gibson Manufacturing Co.

ROBERT IRVING HOWARD, B.E. 1902 (Tex.), Conetoe, N. C.
Civil Engineer.

Name.	*Degree.*	*Address.*
SAMUEL BENJAMIN HOWARD,	B.E. 1913,	Henderson, N. C.
Civil Engineer.		
RALPH WILKINSON HOWELL,	B.S. 1912,	Belhaven, N. C.
Manager Belhaven Ice and Light Plant.		
JESSE FRANCIS HUETTE,	B.E. 1914,	West Raleigh, N. C.
Electrician, N. C. College of Agriculture and Mechanic Arts.		
BRANTON FAISON HUGGINS,	B.E. 1904,	Macon, Ga.
Salesman, Gresham Manufacturing Co., of Griffin, Ga.		
HENRY ALLEN HUGGINS,	B.S. 1900,	Wilmington, N. C.
Bookkeeper, George W. Huggins, Jeweler.		
CHRISTOPHER MILLER HUGHES,	B.E. 1895,	Richmond, Va.
B.S. 1899. Wholesale Lumber Dealer.		
LLOYD RAINEY HUNT,	B.E. 1905,	Lexington, N. C.
Superintendent Lexington Light and Water Department.		
HILL McIVER HUNTER,	B.E. 1904,	Greensboro, N. C.
Purchasing Agent White Oak Mills, Proximity Print Works, Proximity Mills.		
MALCOLM BEALL HUNTER,	B.E. 1895,	Charlotte, N. C.
President Acme Plumbing and Heating Co.		
WILLIAM TISDALE HURTT,	B.E. 1914,	Wilkinsburgh, Pa.
With Turbine Testing Department, Westinghouse Machine Co.		
JOHN WILLIAM IVEY,*	B.E. 1909,	Seven Springs, N. C.
Farmer.		
WILLIAM COLBERT JACKSON,	B.S. 1896,	Wake Forest, N. C.
Farmer.		
ERNEST JUDSON JEFFRESS,	B.E. 1913,	Hamlet, N. C.
With Yadkin River Power Co.		
DOUGLAS CREELMAN JEFFREY,	B.E. 1913,	Oakfield, N. Y.
Mining Engineer, Niagara Gypsum Co.		
WILLIAM LEON JEWELL,	B.E. 1914,	Wilmington, N. C.
LACY JOHN,	B.S. 1914,	Lumber Bridge, N. C.
Farmer.		
EUGENE COLISTUS JOHNSON,	B.E. 1903,	Ingold, N. C.
Lumberman and Farmer.		
JAMES WRIGHT JOHNSON,	B.E. 1913,	Lynn, Mass.
Engineering Student, General Electric Co.		
W. F. R. JOHNSON,	B.E. 1909,	Marion, S. C.
With J. M. Johnson, Civil Engineer.		
WILLIS NEAL JOHNSTON,	B.E. 1914,	Mooresville, N. C.
ALBERT CARL JONES,	B.Agr. 1907,	High Point, N. C.
D.V.S., Kansas City Veterinary College.	Veterinarian, Meat and Milk Inspector.	

* Not heard from this year.

Name.	*Degree.*	*Address.*
FREDERICK JOHN JONES,	B.E. 1909,	Louisville, Ky.

Assistant Engineer, Construction Department, Louisville and Nashville R. R. Home Address, New Bern, N. C.

GARLAND JONES, JR., B.S. 1900, Mandarin, Fla.

ROBERT FRANK JONES, B.E. 1910, Wade, N. C.
Assistant Resident Engineer, Atlantic Coast Line R. R.

WILLIAM MANLY JONES, B.E. 1914, Raleigh, N. C.
Machinery Salesman for Wm. W. Jones.

WILLIAM WHITMORE JONES, B.E. 1907, Franklin, N. C.
Manager Franklin Telephone and Electric Co.

CLYDE RAYMOND JORDAN, B.E. 1910, Currie, N. C.
Owner and Operator of Lumber Plant.

HARVEY LANGILL JOSLYN, B.S. 1913, West Raleigh, N. C.
Instructor in Soils, N. C. College of Agriculture and Mechanic Arts.

SIR KEITH KELLER, B.E. 1914, Yoakum, Texas.
Maintenance Department, S. A. & A. K. Railroad.

JOHN GORDON KELLOGG, B.S. 1912, Hartford, Conn.
With the Connecticut General Life Insurance Co.

MARTIN KELLOGG, B.Agr. 1901, Sunbury, N. C.
Farmer.

CLYDE BENNETT KENDALL, B.S. 1897, Washington, D. C.
Topographer, U. S. Geological Survey.

ALPHEUS ROUNTREE KENNEDY, B.S. 1898, Quincy, Mass.
Ship Draftsman, Fore River Shipbuilding Co.

JAMES MATTHEW KENNEDY, B.E. 1903, Raleigh, N. C.
Architect.

SYDNEY G. KENNEDY, B.S. 1897, Sanford, Fla.
Shop Foreman, Atlantic Coast Line R. R.

ARTHUR TEMPLETON KENYON,* B.E. 1905, Clinton, N. C.

WILLIAM KERR, B.S. 1904, Hayden, N. M.
M.S. 1912, V. P. I. Farmer.

GEORGE EDISON KIDD, B.E. 1913, Schenectady, N. Y.
General Electric Co. Home Address, Paw Creek, N. C.

PAUL KING, B.E. 1914, Ithaca, N. Y.
Student, Cornell University. Home Address, Emporia, Va.

LUTHER HILL KIRBY, B.E. 1910, Manila, P. I.
Civil Engineer, Bureau of Lands.

SAM JONES KIRBY, B.S. 1912, Red Springs, N.C., R.2.
Principal Robeson County Farm Life School.

* Not heard from this year.

Name.	*Degree.*	*Address.*
William Franklin Kirkpatrick,	B.E. 1904,	Storrs, Conn.

B.Agr., 1905. Professor of Poultry Husbandry, Conn. Agricultural College.

Joseph Lawrence Knight,	B.S. 1897,	Dewey, Fla.

Pas Manufacturing Co., Naval Stores.

Louis Braswell Knight,	B.S. 1913,	Tarboro, N. C.

Farmer.

Starr Neely Knox,	B.E. 1905,	Charlotte, N. C.

Assistant Engineer, Southern Railway Co.

William Graham Knox,	B.S. 1906,	New York, N. Y.

Research and Development Laboratory, Chemical Branch, Western Electric Co.

James Herritage Koonce,†	B.E. 1905,	Richlands, N. C.
Lafayette Franck Koonce,	B.Agr. 1907,	Raleigh, N. C.

D.V.M. 1909, Kansas City Veterinary College. Veterinary Surgeon.

Herbert William Kueffner,	B.E. 1908,	Durham, N. C.

City Engineer.

Frederick Creecy Lamb,	B.S. 1898,	El Paso, Tex.

Chemist, City Health Office.

Claude Milton Lambe,	B.E. 1908,	Raleigh, N. C.

Civil Engineer, Construction Department, Carolina Power and Light Co.

Carl Joshua Lambeth,	B.E. 1912,	Manila, P. I.

Lieutenant, Philippine Constabulary.

Bennett Land, Jr.,	B.E. 1903,	Tampa, Fla.

Division Engineer, Seaboard Air Line Railway.

John Thomas Land,	B.E. 1903,	Jacksonville, Fla.

Chief Engineer, Carpenter-O'Brien Co.

Mark Clinton Lasitter,	B.E. 1910,	Snow Hill, N. C.

Civil Engineer, with Southern Drainage and Construction Co.

James Edward Latham,	B.S. 1909,	Manila, P. I.

Agricultural Instructor, Bureau of Agriculture, San Fernando, Pamp.
Home Address, Washington, N. C.

Charles Edward Latta,	B.E. 1908,	Baltimore, Md.
Douglas Allen Leard,	B.E. 1914,	Portsmouth, Va.

Assistant Right of Way Engineer, Seaboard Air Line Railway.

Curtis Williams Lee,	B.E. 1912,	Monroe, N. C.

Superintendent Water and Light Plant.

Eugene Talmage Lee,	B.E. 1910,	Dunn, N. C.
William Dixon Lewis,	B.S. 1914,	Wilmington, N. C.

Superintendent Dairy for Edward L. Craft.

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Name.	*Degree.*	*Address.*
MORRIS LIFEROCK,	B.E. 1913,	Washington, D. C.

Assistant, U. S. Naval Observatory. Member U. S. Astronomical Conference.

JESSE JULIAN LILES, B.E. 1901, Pittsburgh, Pa.
Salesman, Power and Mining Department, General Electric Co.

HENRY MARVIN LILLY, B.E. 1905, Raeford, N. C.
Civil Engineer.

ERNEST ERWIN LINCOLN, B.E. 1904, Phœnixville, Pa.
Draftsman, the Phœnix Bridge Co.

DAVID LINDSAY, B.E. 1908, Draper, N. C.
Assistant Superintendent German-American Co.

JOHN HENRY LITTLE, B.E. 1908, Philadelphia, Pa.
Salesman, General Electric Co.

WILLIAM BENNETT LITTLE, B.S. 1914, Raleigh, N. C.
N. C. Department of Agriculture.

MARION LAMAR LIVERMON, B.E. 1914, Phoenixville, Pa.
Draftsman, the Phœnix Bridge Co.

ULPHIAN CARR LOFTIN, B.S. 1910, Audubon Park, New Orleans, La.
Bureau of Entomology, U. S. Department of Agriculture.

RALPH LONG, B.S. 1909, Graham, N. C.
Salesman, Liggett & Myers Tobacco Co.

LOUIS EDGAR LOUGEE, B.S. 1907, Vandergrift Pa.
Assistant Chemist, American Sheet and Tin Plate Co.

LEWIS OMER LOUGEE, B.E. 1901, Pittsburgh, Pa.
Civil and Mining Engineer. Member firm George S. Baton & Co.

THOMAS PINKNEY LOVELACE, B.E. 1912, Charlotte, N. C.
Foreman, Department of Maintenance, Southern Power Co.

JOE POINDEXTER LOVILL,† B.E. 1906, Mount Airy, N. C.

GEORGE LAFAYETTE LYERLY, B.E. 1908, Hickory, N. C.
Manager and Partner, Shuford Hardware Co.

LIPSCOMBE GOODWIN LYKES, B.E. 1905, Tampa, Fla.
Vice-President Lykes Brothers, Inc.

THOMPSON MAYO LYKES, B.E. 1906, Tampa, Fla.
Secretary and Treasurer The Lykes Co. Secretary Tampa Packing Co.

GEORGE GREEN LYNCH, JR., B.E. 1905, Wilmington, N. C.
Draftsman, Atlantic Coast Line R. R.

ALBERT SYDNEY LYON, B.S. 1899, Rocky Mount, N. C.
Superintendent Rocky Mount Public Works.

† Deceased.

Name.	*Degree.*	*Address.*
EDMOND SHAW LYTCH,	B.E. 1903,	Laurinburg, N. C.
Partner, Laurinburg Machine Co.		
WILLIAM MCNEIL LYTCH,	B.E. 1893,	Laurinburg, N. C.
Partner, Laurinburg Machine Co.		
FRANK WHITESIDE MCCOMB,	B.E. 1913,	Hickory, N. C.
Dairyman.		
HENRY KREIGER MCCONNELL,	B.S. 1907,	Louisville, Ky.
Assistant Chemist, Kentucky Tobacco Products Co.		
EUGENE RICHARD MCCRACKEN,	B.E. 1911,	Gibsonville, N. C.
THOMAS ROBERT MCDEARMAN,	B.E. 1914,	Rocky Mount, N. C.
Resident Engineer.		
FRANK NEELY MCDOWELL,	B.S. 1910,	Raleigh, N. C.
Soil Survey, Agronomy Division, N. C. State Department of Agriculture.		
JAMES EDWARD MCGEE,	B.E. 1912,	Rosemary, N. C.
With Patterson Mills Co.		
MALCOLM ROLAND MCGIRT,	B.Agr. 1905,	Winston-Salem, N. C.
Dairyman for P. H. Hanes.		
JOHN FAIRLY MCINTYRE,	B.E. 1904,	Laurinburg, N. C.
Farmer.		
WALTER HOGE MACINTYRE,	B.S. 1905,	Knoxville, Tenn.
Soil Chemist, Agricultural Experiment Station, University of Tennessee.		
SAMUEL CHRISTOPHER MCKEOWN,	B.E. 1895,	Sumter, S. C.
Chief Engineer, Sumter Electrical Co.		
CHARLES MCKIMMON, JR.,	B.S. 1911,	Ensley, Ala.
Chemist, Tennessee Coal and Iron Co.		
JAMES MCKIMMON,	B.E. 1904,	Raleigh, N. C.
With McKimmon & McKee, Real Estate and Insurance.		
JOHN LUTHER MCKINNON,	B.Agr. 1902,	Laurinburg, N. C.
Farmer.		
JAMES WILLIAM MCKOY,	B.E. 1893,	Black Mountain, N.C.
Civil Engineer and Merchant.		
HORACE SMITH MCLENDON,	B.Agr. 1906,	Wadesboro, N. C.,R.1.
Farmer.		
LENNOX POLK MCLENDON,	B.S. 1910,	Durham, N. C.
Member of the firm of McLendon & Hendricks, Lawyers.		
WALTER JONES MCLENDON, JR.,	B.S. 1897,	Knoxville, Tenn.
President Capitola Manufacturing Co. of Marshall, N. C., and President Prendergast Cotton Mills of Prendergast, Tenn.		
OSCAR FRANKLIN MCNAIRY,	B.E. 1907,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Ry. Home Address, Greensboro, N. C.		

Name.	*Degree.*	*Address.*
JAMES EDGAR MCNEELY,	B.E. 1914,	Mooresville, N. C.
With Mooresville Cotton Mill.		
SAMUEL HUXLEY MCNEELY,	B.E. 1909,	Buffalo, N. Y.
Commercial Engineer, Allis Chalmers Co.		
HARVEY CAMPBELL MCPHAIL,	B.S. 1914,	Mount Olive, N. C.
Farmer.		
CHARLES HARDEN MCQUEEN,	B.E. 1901,	Boston, Mass.
Inspector Bitulithic Pavements, Warren Brothers Co.		
NEILL MCQUEEN,	B.E. 1912,	Atlanta, Ga.
Superintendent of Machinery, Exposition Cotton Mills.		
SAMUEL MACON MALLISON,	B.E. 1909,	Washington, N. C.
Hardware Dealer.		
CARROLL LAMB MANN,	B.S. 1899,	West Raleigh, N. C.
C.E. 1906. Civil Engineer and Professor of Railroad Engineering, N. C. College of Agriculture and Mechanic Arts.		
LOUIS HENRY MANN,	B.E. 1900,	Washington, N. C.
Dentist.		
WALTER RAY MANN,	B.S. 1912,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
WILLIAM LEAKE MANNING,	B.E. 1910,	Rosemary, N. C.
With Rosemary Manufacturing Co.		
CLARENCE TALMAGE MARSH,	B.E. 1908,	Fort Monroe, Va.
First Lieutenant, Coast Artillery Corps, U. S. A.		
WILLIAM ROYDAN MARSHALL,*	B.E. 1909,	New York, N. Y.
Salesman, Westinghouse Machine Co., of East Pittsburgh, Pa.		
JACOB LEE MARTIN,	B.E. 1911,	Graham, N. C.
Civil Engineer.		
RALPH CECIL MASON,	B.S. 1909,	Harrellsville, N. C.
Farmer.		
ARTHUR BALLARD MASSEY,	B.S. 1909,	Auburn, Ala.
Assistant Professor of Botany, Alabama Polytechnic Institute.		
WALTER JEROME MATTHEWS,	B.E. 1893,	Goldsboro and Kinston, N. C.
Contractor and Builder.		
ROBERT SYLVANUS MAUNEY,	B.E. 1913,	Schenectady, N. Y.
With Electrical Testing Department, General Electric Co.		
RAYMOND MAXWELL,	B.E. 1906,	Seven Springs, N. C.
Owner and Proprietor Seven Springs Hotel.		
MELVIN SOLOMON MAYES,	B.E. 1910,	Stem, N. C.
With Stem Mercantile Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
FRANK THEOPHILUS MEACHAM,	B.S. 1893,	Statesville, N. C.
M.S. 1894. Superintendent Experiment Station, U. S. Department of Agriculture.		
EUGENE FRANKLIN MEADOR,	B.E. 1907,	Danville, Va.
With Gardner & Jones.		
ROBERT TOLAR MELVIN,	B.S. 1913,	White Oak, N. C.
Farmer.		
HENRY BASCOM MERCER,	B.E. 1912,	Norfolk, Va.
Draftsman, Norfolk Southern Railroad.		
LEWIS LARKINS MERRITT,	B.E. 1913,	Wilmington, N. C.
Surveyor, U. S. Engineering Department.		
REPTON HALL MERRITT,	B.S. 1897,	Raleigh, N. C.
Secretary-Treasurer Powell & Powell, Inc., Coal, Ice, and Wood.		
ROBERT GRAHAM MEWBORNE,	B.S. 1896,	Louisville, Ky.
Chemist, Kentucky Tobacco Product Co.		
BENNETT TAYLOR MIAL,	B.E. 1907,	Philadelphia, Pa.
Manager of Erection, Belmont Iron Works.		
THOMAS KENNETH MIAL,	B.E. 1913,	Chicago, Ill.
Engineer of Plant, E-Zest-Way Stove Works.		
FRANK CURTIS MICHAEL,	B.E. 1907,	Charlotte, N. C.
Electrical Engineer and Constructor.		
JOSEPH EDGAR MICHAEL,	B.S. 1914,	Lexington, N C.
Veterinarian.		
DAVID JOHN MIDDLETON,	B.Agr. 1908,	Warsaw, N. C.
Farmer and Farm Demonstrator.		
JOSEPH ALFRED MILLER, JR.,	B.E. 1904,	Brevard, N. C.
Manager Miller Supply Co.		
WALKER MOREHEAD MILLNER,	B.E. 1909,	Spray, N. C.
Superintendent Holt's Mills.		
JOHN MAPLE MILLS,	B.E. 1907,	Raleigh, N. C.
Half Partner and Manager Bland Hotel Cafe.		
SIMON TURNER MITCHINER,	B.E. 1912,	Garner, N. C.
THOMAS GUY MONROE,	B.S. 1914,	Rocky Mount, N. C.
Dairyman for H. L. Drake.		
BENJAMIN FRANKLIN MONTAGUE,	B.E. 1909,	Johnson City, Tenn.
Draftsman, Carolina, Clinchfield and Ohio Railway.		
HENRY STARBUCK MONTAGUE,	B.S. 1907,	Agr'l College, Miss.
Assistant Chemist, Mississippi State Laboratory.		
LEON DAVIS MOODY,*	B.E. 1910,	Charleston, S. C.
Chief Engineer, Interstate Chemical Corporation.		
WARREN LAFAYETTE MOODY,	B.S. 1914,	Ithaca, N. Y.
——— Assistant in Chemistry, Cornell University.		

* Not heard from this year.

Name.	*Degree.*	*Address.*

EUGENE BOISE MOORE, B.E. 1910, Toledo, Ohio.
Manager Toledo Sales Office, Allis Chalmers Manufacturing Co.

LACY MOORE, B.E. 1906, Charlotte, N. C.
Assistant Engineer, Southern Railway.

JAMES OSCAR MORGAN, B.Agr. 1905, College Station, Tex.
M.S.A. 1907, Ph. D. 1909, Cornell University. Professor of Agronomy, Texas A. and M. College.

ROBERT LEE MORGAN,† B.E. 1910, Silver City, N. M.

JESSE JOHN MORRIS, B.E. 1903, Weeksville, N. C.
Farmer and County Surveyor.

WILLIAM FLAUD MORRIS, B.E. 1909, Clayton, N. C.
Superintendent Clayton Oil Mill Co.

JOSEPH GRAHAM MORRISON, B.Agr. 1906, Stanley, N. C.
Farmer.

ROBERT HALL MORRISON, B.E. 1900, Salisbury, N. C.
President Machinery Supply Co.

ROBERT LEE MORRISON, B.E. 1911, Winston-Salem, N. C
Resident Engineer for J. N. Ambler, Municipal Improvements.

JOHN LIGHTFOOT MORSON, B.E. 1907, Norfolk, Va.
Civil Engineer, Valuation Department, Seaboard Air Line Railway.

WILLIAM FIELD MORSON, B.E. 1904, Seabrook, S. C.
Locating Engineer, Carolina, Atlantic and Western Railroad.

FRANK BULLOCK MORTON, B.E. 1914, Townsend, N. C.
Farmer.

LAURIE MOSELEY, B.E. 1902, Greensboro, N. C.,
Thompson & Moseley, Inc., Contractors.

VASSAR YOUNG MOSS, B.E. 1902, Canonsburg, Pa.
Draftsman, Fort Pitt Bridge Works.

HARRY YOEMANS MOTT, B.S. 1910, Mooresville, N. C.
Farmer.

JAMES RICHARD MULLEN, B.S. 1912, Raleigh, N. C.
Assistant Chemist, N. C. Department of Agriculture.

LINDSLEY ALEXANDER MURR, B.E. 1905, Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.

GARLAND PERRY MYATT, B.S. 1905, Brooklyn, N. Y.
Managing Chemist, Chas. Pfizer & Co.

O'KELLY W. MYERS, B.S. 1899, Brooklyn, N. Y.
Assistant Engineer, Board of Water Supply, City of New York.

JESSE CLARENCE MYRICK, B.E. 1906, Balboa, C. Z.
General Foreman, Fortification Division, Panama Canal.

HENRY KOLLOCK NASH, JR., B.S. 1914, St. Louis, Mo.
With Frisco Railroad.

† Deceased.

Name.	*Degree.*	*Address.*
LEON ANDREWS NEAL,	B.E. 1904,	Roanoke, Va.
Resident Engineer, Virginia Iron, Coal and Coke Co.		
WILLIAM MCCORMICK NEALE,	B.E. 1910,	Greenville, S. C.
Chief Draftsman, American Machine and Manufacturing Co.		
CHARLES MCKEE NEWCOMB,	B.E. 1912,	Rugby Road, Tenn.
Masonry Inspector, Cincinnati, New Orleans and Texas Pacific Railway.		
THOMAS WINSTON NICHOLLS,	B.E. 1914,	Philadelphia, Pa.
With Westinghouse Electric and Manufacturing Co.		
CHARLES ARTHUR NICHOLS,	B.E. 1902,	Muskogee, Okla.
Manager Third Street Grocery Co.		
EDGAR BYRON NICHOLS,	B.E. 1914,	West Raleigh, N. C.
Instructor in N. C. College of Agriculture and Mechanic Arts.		
CHARLES FRANKLIN NIVEN,	B.Agr. 1906,	Clemson College, S. C.
Assistant Professor of Horticulture, Clemson College.		
LOLA ALEXANDER NIVEN,	B.Agr. 1906,	Atlanta, Ga.
Editor, Southern Farming.		
WILLIAM TIMOTHY NIXON,	B.S. 1913,	Sunbury, N. C.
Farmer.		
LEWIS MILTON ODEN,	B.Agr. 1906,	Durham, N. C.
Assistant Manager and Bookkeeper for J. L. Councill Mercantile Co.		
THOMAS JEFFERSON OGBURN, JR.,	B.E. 1906,	Richmond, Va.
With Everett-Waddey Co.		
ALBERT HICKS OLIVER,	B.S. 1897,	Mount Olive, N. C.
Farmer.		
SAMUEL LOFTIN OLIVER,	B.E. 1909,	Mount Olive, N. C.
Electrical Contractor and Engineer.		
JAMES ELWOOD OVERTON,	B.Agr. 1907,	Ahoskie, N. C.
Traveling Grader, Inspector and Peanut Buyer for American Peanut Corporation.		
DAVID STARR OWEN,	B.E. 1903,	Savannah, Ga.
General Superintendent Atlantic Turpentine and Refining Co.		
EDWIN BENTLEY OWEN,	B.S. 1898,	West Raleigh, N. C.
Registrar, N. C. College of Agriculture and Mechanic Arts.		
CHARLES WASHINGTON OWENS,	B.E. 1912,	Wilmington, N. C.
Office of Valuation Engineer, Atlantic Coast Line Railroad. Home Address, Walstonburg, N. C., R. 1.		
JOHN ALSEY PARK,	B.E. 1905,	Raleigh, N. C.
Publisher The Raleigh Times.		
B. MOORE PARKER	B.S. 1898,	West Raleigh, N. C.
Proprietor West Raleigh Drug Store.		
CLYDE ESTER PARKER,	B.S. 1906,	Raleigh, N. C.
Member of firm of Parker Bros. & Co., Cotton Brokers and Merchants.		

Name.	*Degree.*	*Address.*
EUGENE LEROY PARKER,	B.S. 1899,	Mt. Pleasant, Tenn.
Chemist and Manager, E. L. Parker & Co.		
JOHN HARVEY PARKER,	B.E. 1903,	New Bern, N. C.
With Burrus & Parker, Inc.		
JAMES LAFAYETTE PARKER,	B.E. 1902,	New York, N. Y.
Assistant Engineer, Herbert C. Keith, Consulting Engineer.		
JULIUS MONROE PARKER,	B.E. 1909,	Nashville, Tenn.
Civil Engineer, Louisville and Nashville Railway Co.		
THOMAS FRANKLIN PARKER,	B.Agr. 1907,	Rio Piedras, Porto Rico.
M.S. 1908. General Supervisor of Agricultural Education of Porto Rico.		
WALTER HERBERT PARKER,	B.E. 1913,	East Pittsburgh, Pa.
Technical Apprentice, Westinghouse Machine Co.		
FRED MAYNARD PARKS,	B.E. 1907,	Wilkinsburg, Pa.
Electrician, Westinghouse Electric and Manufacturing Co.		
THADDEUS ROWLAND PARRISH,	B.E. 1913,	New York, N. Y.
Signalman with General Railway Signal Co. Home Address, Middleburg, N. C.		
JOHN GILBERT PASCHAL,	B.E. 1909,	Maxton, N. C.
Lumber Manufacturer.		
ARTHUR LEE PASCHALL,	B.Agr. 1907,	San Simon, Ariz.
Farm Adviser for Cochise and Santa Cruz Counties.		
WILLIAM FRANKLIN PATE,	B.S. 1901,	Raleigh, N. C.
M.S., 1913. Soil Agronomist, N. C. Department of Agriculture.		
MANN CABE PATTERSON,	B.E. 1895,	Durham, N. C.
ROBERT DONNELL PATTERSON,	B.S. 1894,	Chase City, Va.
M.S., 1898. President the First State Bank.		
FITZGERALD ELIZUR PATTON,	B.S. 1914,	Burnsville, N. C.
Farm Demonstrator for Yancey County.		
WILLIAM JOEL PATTON,	B.E. 1904,	Dallas, Texas.
Electrician.		
WILLIAM ROBERT PATTON,	B.E. 1914,	Salisbury, N. C.
With Southern Railway Co.		
CHARLES PEARSON,	B.E. 1894,	Lagrange, Ga.
Member of firm, General Engineering Construction Co., General Contractors.		
FRED. TAYLOR PEDEN,	B.S. 1911,	Springdale, N. C.
Agent in Animal Husbandry, United States and North Carolina Departments of Agriculture.		
JOHN TAYLOR PEDEN,	B.E. 1911,	Pittsburgh, Pa.
Sales Department, Westinghouse Electric and Manufacturing Co.		
JAMES HICKS PEIRCE,	B.S. 1905,	Warsaw, N. C.
With J. H. Pierce Manufacturing Co., Sash, Doors and Blinds.		
WILLIAM CASPER PENNINGTON,	B.E. 1910,	Winston-Salem, N. C.
With Shamrock Hosiery Mills.		

Name. *Degree.* *Address.*

SAMUEL OSCAR PERKINS, B.S. 1906, Raleigh, N. C.
Soil Scientist, N. C. Department of Agriculture.

EUGENE GRAY PERSON, B.S. 1899, Macon, Ga.
Train Dispatcher, Central of Georgia Railway.

MILTON VANCE PERRY, B.E. 1914, Durants Neck, N. C.
With L. B. Perry & Co.

WILLIAM MONTGOMERY PERSON, B.E. 1900, Fairfield, Birm'h'm, Alabama.
With Semet-Solvay By-product Coke Plant, of Ensley, Ala.

FREDERICK COLWELL PHELPS, B.E. 1904, San Francisco, Cal.
Second Lieutenant, 12th U. S. Infantry.

HENRY MARRIOTT PHILIPS, B.S. 1914, Battleboro, N. C.
Farmer.

ARTHUR JEFFERSON PHILLIPS, JR., B.E. 1914, Wilkinsburg, Pa.
Engineering Apprentice, Westinghouse Machine Co.

WILLIAM RANSOME PHILLIPS, B.E. 1910, Raleigh, N. C.
E.E., 1913. With Engineering Department, Carolina Power and Light Co.

ALEXANDER HOLLADAY PICKELL, B.E. 1912, Raleigh, N. C.
Salesman for Gray & Davis, Inc., Boston, Mass.

PETER PENICK PIERCE, B.E. 1909, St. Augustine, Fla.
Field Engineer, Valuation Department, Florida East Coast Railway.

GUY PINNER, B.E. 1907, Galveston, Tex.
C.E., 1912. Chief Inspector, American Indemnity Co.

WINSLOW GERALD PITMAN, B.E. 1907, Lumberton, N. C.
Superintendent City Water and Light Department.

PAUL NATHANIEL PITTENGER, B.E. 1911, New York, N. Y.
With Edison Company.

BENJAMIN FRANKLIN PITTMAN, B.E. 1908, Pee Dee, N. C.
Operating Power Plant, Yadkin River Power Co.

LAWRENCE LYON PITTMAN, B.E. 1908, Whitakers, N. C.
Civil Engineer and Farmer.

PAUL MILLER PITTS, B.E. 1909, Lockhart, Ala.
Machinist, Jackson Lumber Co.

ANGELO BETTLENA PIVER, B.E. 1906, Phœnixville, Pa.
Structural Draftsman, Phœnix Bridge Co.

WILLIAM CRAWFORD PIVER, B.S. 1906, New York, N. Y.
With Riches, Piver & Co., Chemical and Color Manufacturers, Hoboken, N. J.

JAMES KEMP PLUMMER, B.S. 1907, Raleigh, N. C.
M.S., 1909. Ph.D. 1915, Cornell University. Soil Chemist, State Department of Agriculture.

ROBERT AVERY PLYLER, B.E. 1914, Monroe, N. C., R. 5.

PLEASANT H. POINDEXTER, JR., B.Agr. 1905, Sharon, Okla.
Manager, C. E. Sharp Lumber Co.

Name.	*Degree.*	*Address.*
FREDERICK DAVIS POISSON,	B.S. 1914,	Greensboro, N. C.
With American Tobacco Co.		
RUBLE ISAAC POOLE,	B.E. 1908,	West Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
EDWARD GRIFFITH PORTER,	B.E. 1905,	Paraiso, C. Z.
Junior Engineer, Dredging Division, Panama Canal.		
JUNIUS EDWARD PORTER,	B.E. 1900,	Aurora, N. C.
General Manager and Treasurer, J. E. Porter & Co., Railroad Contractors.		
TRACY WINCHESTER PORTER,	B.S. 1914,	Charlotte, N. C.
BRYANT MONROE POTTER,	B.E. 1912,	New Bern, N. C.
Civil Engineer.		
WILLIAM OWEN POTTER,	B.E. 1914,	West Raleigh, N. C.
Graduate Student, N. C. College of Agriculture and Mechanic Arts.		
HARRY ALEXANDER POWELL,	B.E. 1908,	Fernandina, Fla.
Naval Stores Operator.		
JAMES ALEXANDER POWELL,	B.E. 1908,	East Pittsburgh, Pa.
M.E. 1913. Assistant Engineer, Condenser Department, Westinghouse Machine Co.		
JOEL POWERS,	B.E. 1903,	Goldsboro, N. C.
Draftsman, Dewey Brothers.		
THOMAS MILTON POYNER,	B.E. 1908,	Hamlet, N. C.
With W. R. Bonsal & Co.		
JAMES BRUCE PRICE,	B.E. 1910,	Bethlehem, Pa.
Electrical Engineer, Bethlehem Steel Co.		
JOHN MOIR PRICE,	B.E. 1909,	Bethlehem, Pa.
Salesman of Special Steels, Bethlehem Steel Co.		
HUGH WILLIAMS PRIMROSE,†	B.S. 1897,	Raleigh, N. C.
M.S. 1900.		
ABRAM HINMAN PRINCE,	B.S. 1895,	Orange, Tex.
Agent U. S. Department of Agriculture.		
CHARLES MARCELLUS PRICHETT,	M.E. 1895,	Charlotte, N. C.
C.E., 1896. Member of firm, Osborne & Pritchett, Civil Engineers.		
VICTOR VASHTI PRIVOTT,	B.E. 1895,	Suffolk, Va.
Merchant.		
THOMAS HECTOR PURCELL,	B.E. 1913,	Hope Mills, N. C.
Bookkeeper, Hope Mills Manufacturing Co.		
HENRY AUBREY QUICKEL,	B.S. 1913,	Charlotte, N. C.
With Western Union Telegraph Co.		
JOSEPHUS PLUMMER QUINERLY,	B.S. 1911,	Grifton, N. C.
Farmer and Merchant.		
MILLARD REED QUINERLY,	B.S. 1914,	Grifton, N. C.
Farmer.		

† Deceased.

Name.	*Degree.*	*Address.*
JOHN OLAN RANKIN, JR.,	B.S. 1913,	Hoffman, N. C.
Dairy Superintendent for Frederick T. Gates & Son.		
WILLIAM WALTER RANKIN,	B.E. 1904,	Cambridge, Mass.
Graduate Student in Mathematics, Harvard University.		
RISDEN PATTERSON REECE,	B.E. 1904,	Winston-Salem, N. C.
Mechanical Engineer.		
JOHN BARTOW REES,	B.E. 1914,	Charlotte, N. C.
Draftsman, Southern Bell Telephone and Telegraph Co.		
ROBERT RICHARD REINHARDT,	B.S. 1909,	Lincolnton, N. C.
D.V.M., Kansas City Veterinary College. Veterinarian.		
WILLIAM BENEDICT REINHARDT,	B.E. 1902,	Dawson, Y. T., Canada.
Electrician, Dawson Electric Light and Power Co.		
ROGER FRANCIS RICHARDSON,	B.E. 1900,	Ensley, Ala.
Engineer, Semet-Solvay Co.		
WILLIAM RICHARDSON, JR.,	B.E. 1904,	Birmingham, Ala.
Assistant to Consulting Engineer, Coal Mining Department, Tennessee Coal, Iron and Railroad Co.		
EDWARD HAYS RICKS,	B.E. 1903,	Roanoke Rapids, N.C.
Cashier First National Bank.		
LOUIS NAPOLEON RIGGAN,	B.E. 1912,	Norfolk, Va.
Draftsman, Valuation Department, Seaboard Air Line Railway.		
ALFRED PRATTE RIGGS,	B.E. 1909,	Key West, Fla.
With Florida East Coast Railway.		
THURMAN LESTER ROBERSON,	B.E. 1914,	Robersonville, N. C.
With A. S. Roberson & Co.		
DANIEL ERNEST ROBERTS,	B.S. 1914,	Red Springs, N. C.
Farmer.		
JOHN MORGAN ROBERTS,	B. S. 1914,	Columbia, Mo.
Student, University of Missouri.		
ARCHIE KNIGHT ROBERTSON,	B.S. 1912,	West Raleigh, N. C.
Assistant in Boys' Corn Club Work in North Carolina, U. S. Department of Agriculture.		
DURANT WAITE ROBERTSON,	B.E. 1906,	Washington, D. C.
Teller, District National Bank.		
JOSEPH HENRY ROBERTSON,	B.E. 1909,	Salisbury, N. C.
With North Carolina Public Service Co.		
RAY FREDERICK ROBINSON,	B.E. 1910,	Newport News, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co.		
GASTON WILDER ROGERS,	B.E. (Elec.) 1903,	Birmingham, Ala.
B.E. (Civil) 1905. Physician and Surgeon.		
WEBBIE GEORGE ROGERS,†	B.E. 1894,	Roxboro, N. C.

† Deceased.

Name.	*Degree.*	*Address.*
JOHN WESLEY ROLLINSON,	B.E. 1911,	Zephyrhills, Fla.
WILLIAM EDWIN ROSE,	B.E. 1900,	Washington, D. C.
Mechanical Engineer. Member Washington Society Engineers and The American Society of Marine Draftsmen.		
CHARLES BURDETTE ROSS,	B.E. 1903,	Charlotte, N. C.
Secretary and Treasurer Model Steam Laundry Co.		
FLOYD DE ROSS,	B.E. 1900,	Lawton, Okla.
Owner Lawton Coca-Cola Bottling Co.		
GRAEME ROSS,	B.E. 1911,	Pittsburgh, Pa.
With Sales Department, Westinghouse Electric and Manufacturing Co.		
GEORGE ROMULUS ROSS,	B.S. 1911,	Jackson Springs, N. C
Farm Manager for Roger A. Derby.		
JOE WILLIAM ROSS,	B.S. 1914,	Fort Mill, S. C.
Farmer.		
EMORY PELL ROUSE,	B.E. 1914,	Lagrange, N. C.
Farmer.		
GARLAND THOMAS ROWLAND,	B.E. 1913,	Schenectady, N. Y.
With General Electric Co.		
CARL COLLINS SADLER,	B.E. 1910,	Whitney, N. C.
Resident Engineer, Southern Aluminum Co.		
JAMES OLIN SADLER,	B.E. 1909,	Bartow, Fla.
Resident Engineer, Seaboard Air Line Railway.		
WILLIS HUNTER SANDERS,	B.S. 1897,	Weldon, N. C.
Superintendent of Power, Roanoke River Development Co.		
JOHN HYER SAUNDERS,	B.E. 1894,	Kinston, N. C.
Locomotive Engineer, Atlantic Coast Line Railroad.		
IRA OBED SCHAUB,	B.S. 1900,	Springfield, Mo.
Superintendent Demonstration Work, Frisco Railway.		
JOHN FRANKLIN SCHENCK, JR.,	B.E. 1914,	Lawndale, N. C.
With Cleveland Mill and Power Co.		
LEON JACOB SCHWAB,	B.E. 1907,	Savannah, Ga.
Junior Engineer, U. S. Engineering Department.		
ROBERT WALTER SCOTT, JR.,	B.Agr. 1905,	Bolton, N. C.
Agricultural Expert, North Carolina Co.		
EARLE ALOYSIUS SEIDENSPINNER,	B.S. 1910,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
DAVID WALTER SEIFERT,	B.E. 1913,	Weldon, N. C.
Manager Weldon Coca-Cola Co.		
CARL DEWITT SELLARS,	B.E. 1893,	Greensboro, N. C.
Sales Department, Cone Export and Commission Co.		
JOHN WILLIAM SEXTON,	B.E. 1910,	Portsmouth, Va.
Resident Engineer, Seaboard Air Line Railway.		

Name.	*Degree.*	*Address.*

CHARLES EDGAR SEYMORE,† B.S. 1893, Raleigh, N. C.

WILLIAM THOMAS SHAW, JR., B.E. 1914, Danville, Va.
With Dan River Cotton Mills.

JAMES MORGAN SHERMAN, B.S. 1911, State College, Pa.
M.S., Univ. of Wisconsin, 1912. Bacteriologist, Pennsylvania State College and Agricultural Experiment Station. Home Address, McLean, Va.

FLEMING BATES SHERWOOD, B.S. 1912, West Raleigh, N. C.
Assistant in Chemistry, North Carolina Experiment Station.

FRANCIS WEBBER SHERWOOD, B.S. 1909, Ithaca, N. Y.
M.S. 1911. Graduate Student and Assistant in Chemistry, Cornell University.

ROBERT ARNOLD SHOPE, B.E. 1909, Manila, P. I.
Lieutenant, Philippine Constabulary, Insular Government.

JOHN WADE SHORE, B.S. 1900, Boonville, N. C.
Cashier Commercial and Savings Bank.

IRA SHORT, B.E. 1911, Wilkinsburg, Pa.
Engineer, Westinghouse Machine Co., of East Pittsburgh, Pa.

JOHN HOUSTON SHUFORD, B.S. 1903, Charlotte, N. C.
Technical Representative and Salesman, Berlin Aniline Works.

JOHN OSCAR SHUFORD, B.E. 1907, Lincolnton, N. C.
Superintendent Electric Plant, Town of Lincolnton.

WILLIAM TALMAGE SHULL, B.E. 1912, Beaufort, N. C.
Civil Engineering.

ORIN MORROW SIGMON, B.E. 1911, Hickory, N. C.
Treasurer Piedmont Wagon and Manufacturing Co.

GEORGE GRAY SIMPSON, B.E. 1909, Rockingham, N. C.
Assistant to Secretary and Treasurer, Great Falls Manufacturing Co.

WILLIAM DUDLEY SIMPSON, B.E. 1913, Raleigh, N. C.
Assistant Engineer, City of Raleigh.

FREDERICK ERASTUS SLOAN, B.S. 1899, Statesville, N. C.
General Insurance Agent.

ROBERT LEE SLOAN, B.S. 1913, Raleigh, N. C.
Assistant Director Farmers Institutes, North Carolina Department of Agriculture.

WILLIAM NEVILLE SLOAN, B.E. 1909, Abingdon, Va.
Examiner of Surveys, U. S. Government Forest Service.

ANDREW THOMAS SMITH, B.S. 1899, Bridgeton, N. J.
Mechanical Engineer, with Cumberland Glass Manufacturing Co.

EDGAR ENGLISH SMITH, B.E. 1908, Seattle, Wash.
With U. S. Coast and Geodetic Survey.

EDWIN HARRISON SMITH B.E. 1910, Weldon, N. C.
With Bank of Weldon.

EDWARD OSCAR SMITH, B.E. 1901, Newport News, Va.
Chief of Order Department, Newport News Shipbuilding and Dry Dock Co.

† Deceased.

Name.	*Degree.*	*Address.*
FRANCIS CLARK SMITH,	B.E. 1913,	Winter Haven, Fla.
FRANK STEED SMITH,	B.E. 1913,	Savannah, Ga.
Division Traffic Supervisor, Southern Bell Telephone and Telegraph Co.		
JAMES LAWRENCE SMITH, JR.,	B.E. 1908,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
JAMES MCCREE SMITH,	B.S. 1912,	State Road, N. C.
Fruit Grower.		
JONATHAN RHODES SMITH,	B.E. 1905,	New York, N. Y.
Chief Draftsman, The Jobson-Gifford Co.		
ORUS WILDER SMITH,	B.E. 1912,	Springfield, Ohio.
Road Engineer, Foos Gas Engine Co.		
WALTER HERBERT SMITH,	B.E. 1914,	Wilkinsburg, Pa.
Student Apprentice, Westinghouse Electric and Manufacturing Co.		
WILLIAM TURNER SMITH,	B.E. 1900,	Duke, N. C., R. 1.
Farmer.		
THOMAS JEHU SMITHWICK,	B.S. 1897,	Mount Airy, N. C.
Consulting and Erecting Engineer.		
RUSSELL ELSTNER SNOWDEN,	B.E. 1902,	Snowden, N. C.
Senior Member, Snowden & Snowden, Civil and Consulting Highway Engineers.		
CHARLIE AUGUSTINE SPEAS,	B.E. 1911,	Laurel, Miss.
With New Orleans, Mobile and Chicago Railroad.		
EDWARD PINKNEY SPEER,	B.E. 1912,	Waco, Tex.
Assistant Chief Meter Engineer, Texas Power and Light Co.		
JOHN FRANCIS SPEIGHT,†	B.E. 1910,	Whitakers, N. C.
COLIN GEORGE SPENCER,	B.S. 1913,	Charlotte, N. C.
Farmer for W. B. Hodge.		
JOHN DAVIDSON SPINKS,	B.E. 1905,	Albemarle, N. C.
C.E., 1913. Civil Engineer.		
JESSE PAGE SPOON,	B.Agr. 1908,	Burlington, N. C.
M.S. 1909. Veterinarian. D.V.S., Kansas City Veterinary College.		
ST. JULIEN LACHICOTTE SPRINGS,	B.S. 1910,	Lake Waccamaw, N.C
Farmer for H. B. Short, and Traveling Salesman, Acme Manufacturing Company of Wilmington, N. C.		
ERVIN BLACKENEY STACK,	B.E. 1905,	Monroe, N. C.
Member of firm, J. E. Stack & Co.		
TALMAGE HOLT STAFFORD,	B.S. 1912,	Harmony, N. C.
Instructor in Agriculture, Iredell County Farm Life School.		
CHARLES BURT STAINBACK,	B.E. 1910,	East Pittsburgh, Pa.
With Sales Department, Westinghouse Electric and Manufacturing Co.		
EDWARD ROE STAMPS,	B.E. 1903,	Macon, Ga.
Superintendent, F. S. Royster Guano Co.		

† Deceased.

Name.	*Degree.*	*Address.*
HARRIS INGRAM STANBACK,	B.E. 1910,	Newark, N. J.
In Charge of Quality, General Electric Lamp Works.		
NUMA REID STANSEL,	B.S. 1898,	El Paso, Tex.
E.E. 1901. Local Manager Southwest General Electric Co.		
THOMAS BARNES STANSEL,*	B.S. 1910,	Ithaca, N. Y.
Graduate Student, Cornell University.		
CLARENCE ALEXANDER STEDMAN,	B.S. 1912,	Richmond, Va.
Chemist, Virginia-Carolina Chemical Co.		
ALEXIS PRESTON STEELE,	B.S. 1899,	Statesville, N. C.
Mechanical Engineer, Firm of J. C. Steele & Sons.		
HUGH STUART STEELE,	B.E. 1909,	Miles City, Mont.
Drainage Engineer, Chicago, Milwaukee and St. Paul Railway.		
JOHN BROWN STEELE,	B.S. 1913,	Lexington, N. C.
Farm Demonstrator for Davidson County.		
LUCIUS ESEK STEERE, JR.,	B.E. 1911,	Detroit, Mich.
Engineer and Factory Inspector for Electric Ticket Machine Co. of Chicago, Ill.		
SAMUEL FATIO STEPHENS,	B.E. 1909,	Norfolk, Va.
Draftsman.		
NEEDHAM BRYAN STEVENS,	B.S. 1912,	Goldsboro, N. C., R.4.
Farmer.		
WILLIAM BEEVER STOVER,	B.E. 1913,	Wilkinsburg, Pa.
Graduate Student, Westinghouse Electric and Manufacturing Co.		
CHARLIE BERRYHILL STOWE,	B.S. 1913,	Charlotte, N. C., R. 4.
Farmer.		
GEORGE YATES STRADLEY,	B.E. 1903,	Roanoke, Va.
With Virginia Bridge and Iron Co.		
JOHN SNIPES STROUD,	B.E. 1908,	Stonewall, Miss.
Superintendent Stonewall Cotton Mills.		
WALTER STEPHEN STURGILL,	B.E. 1901,	West Point, N. Y.
First Lieutenant of Field Artillery, U. S. Army. Assistant Instructor of Tactics, U. S. Military Academy.		
WILLIAM CLARK STRYON,	B.E. 1910,	Newport News, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co. Home Address, Washington, N. C.		
TEISAKU SHUGISHITA,*	B.S. 1898,	Japan.
BEVERLY NATHANIEL SULLIVAN,	B.S. 1901,	Winston- Salem, N. C.
THOMAS BRYAN SUMMERLIN,	B.E. 1910,	Calypso, N. C.
With Albritton & Summerlin, General Merchants.		
HENRY NEWBOLD SUMNER,	B.E. 1909,	Fort Dade, Fla.
Lieutenant Coast Artillery Corps, U. S. Army.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
LLOYD HURST SWINDELL,	B.E. 1911,	Hartsville, S. C.
With Pedigreed Seed Farm.		
STANTON BANKS SYKES,	B.E. 1913,	Efland, N. C.
VANCE SYKES,	B.E. 1907,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
GEORGE FREDERICK SYME,	B.S. 1898,	Raleigh, N. C.
C.E. 1907. Locating Engineer, Raleigh, Charlotte and Southern Railway.		
WILLIAM ANDERSON SYME,†	B.S. 1899,	Raleigh, N. C.
M.S. 1903. Ph.D., Johns Hopkins University.		
FREDDIE JACKSON TALTON,	B.Agr. 1906,	Pikeville, N. C., R. 2
Farmer.		
CLAUDE STRATON TATE,	B.E. 1909,	Littleton, N. C.
Secretary, Tate Machinery and Supply Co.		
ARTHUR WILLIS TAYLOR,	B.E. 1912,	Burlington, N. C.
Engineer with Piedmont Railway and Electric Co.		
CULVER MURAT TAYLOR,	B.E. 1912,	Syracuse, N. Y.
With Niagara, Lockport and Ontario Power Co.		
HERBERT LEE TAYLOR,	B.E. 1912,	Baltimore, Md.
Special Apprentice, B. and O. R. R.		
WALTER CLYBURN TAYLOR,	B.E. 1913,	Boston, Mass.
Resident Engineer for H. C. Raynes, Inc., Consulting Engineers.		
ZEBULON WHITEHURST TAYLOR,†	B.E. 1914,	Tarboro, N. C.
JAMES CLARENCE TEMPLE,	B.S. 1904,	Experiment, Ga.
M.S. 1908. Bacteriologist, Georgia Experiment Station.		
MALVERN HILL TERRELL,	B.E. 1909,	Atlanta, Ga.
Chief Engineer, U. S. Post Office and Courthouse.		
FRANK MARTIN THOMPSON,	B.E. 1910,	New York, N. Y.
With Lorillard Tobacco Co. Home Address, Raleigh, N. C.		
GEORGE LOGAN THOMPSON,	B.E. 1912,	Goldsboro, N. C.
JOHN SAM THOMPSON,	B.S. 1912,	Woodville, N. C.
Farmer.		
THOMAS HAMPTON THOMPSON,	B.E. 1910,	Greensboro, N. C.
With Southern Railway.		
BUXTON WILLIAMS THORNE,†	B.E. 1893,	Holly Springs, Miss.
THOMAS WHITMELL THORNE,	B.E. 1911,	Atlanta, Ga.
Salesman, National Tube Co.		
DANIEL WOOD THORP, JR.,	B. E. 1914,	Seabrook, S. C.
Civil Engineer, with Jefferson Construction Co.		
LUTHER RUSSELL TILLETT,*	B.E. 1907,	Zamboanga, P. I.
Civil Engineer.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
RICHARD HENRY TILLMAN,	B.E. 1906,	Baltimore, Md.
Industrial Engineer, Consolidated Gas, Electric Light and Power Co.		
WILLIAM SIDNEY TOMLINSON,	B.E. 1906,	Columbia, S. C.
Civil Engineer, Shand Engineering Co.		
JAMES EDWIN TOOMER,	B.S. 1909,	Mascot, Tenn.
Chemist, American Zinc Company of Tennessee.		
JAMES RICHARD TOWNSEND,	B.E. 1914,	Greensboro, N. C.
Concrete Inspector, Irving Park Co.		
CHARLES EDWARD TROTTER,†	B.S. 1903,	Franklin, N. C.
M.D., Johns Hopkins University.		
GEORGE REID TROTTER,	B.E. 1912,	Charlotte, N. C.
Construction Foreman, General Electric Co.		
WILLIAM BROOKS TRUITT,	B.E. 1907,	Greensboro, N. C.
Superintendent Steel Department, Wysong-Miles Co.		
FRED GOODE TUCKER,	B.E. 1911,	Warfield, Va.
Engineer and Dealer in Real Estate.		
ISAAC NORRIS TULL,	B.E. 1910,	Cleveland, Ohio.
Construction Foreman, General Electric Co.		
REID TULL,*	B.E. 1906,	Spartanburg, S. C.
City Engineer.		
JOHN EDWIN TURLINGTON,	B.Agr. 1907,	Vanceboro, N. C.
M.S. and Ph.D., Cornell University. Superintendent Craven County Farm-life School.		
JOSEPH PLATT TURNER,	B.E. 1902,	Leaksville, N. C.
Owner Twin City Supply Co.		
WILLIAM HARRISON TURNER,	B.E. 1893,	Winston-Salem, N. C.
Manufacturer of Feedstuffs.		
JACKSON CORPENING TUTTLE,	B.E. 1906,	Baltimore, Md.
Industrial Power Department, Consolidated Gas, Electric Light and Power Co.		
ROBERT PEELE UZZELL,	B.Agr. 1906,	Goldsboro, N. C.
Farmer.		
PETER VALAER, JR.,	B.S. 1906,	Washington, D. C.
M.S. 1913, George Washington University. Assistant Chemist, Bureau Internal Revenue.		
CLYDE LOREINE VANN,†	B.E. 1914,	Fayetteville, N. C.
LILLIAN LEE VAUGHAN,	B.E. 1906,	West Raleigh, N. C.
M.E. 1909. M.E. 1911, Columbia University. Assistant Professor of Experimental Engineering, N. C. College of Agriculture and Mechanic Arts.		
SOLOMON ALEXANDER VEST,	B.S. 1900 (Chem.),	Mount Pleasant, Tenn.
B.Agr., 1901. Secretary and Treasurer, the Smith Laboratory.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
SYLVESTER MURRAY VIELE,	B.E. 1905,	Altoona, Pa.
With Pennsylvania Railroad Co.		
JOHN LAWRENCE VON GLAHN,	B.E. 1908,	Baltimore, Md.
With Elkan-Tufts Construction Co.		
EDWIN THOMAS WADSWORTH,	B.E. 1911,	Erie, Pa.
Student Engineer, General Electric Co.		
ROSCOE MARVIN WAGSTAFF,	B.E. 1900,	Norfolk, Va.
Marine Engine and Boiler Draftsman, Machinery Division, U. S. Navy Yard.		
JOSEPH KENDALL WAITT,	B.E. 1904,	Norfolk, Va.
Record Examiner, Valuation Department, Seaboard Air Line Railway.		
WALTER JENNINGS WALKER,*	B.E. 1905,	Schenectady, N. Y.
General Electric Co. Home Address, Winston-Salem, N. C.		
STEVEN DOCKERY WALL,†	B.E. 1905,	Rockingham, N. C.
CHARLES EMMETTE WALTON,	B.E. 1910,	Havana, Cuba.
With the Crocker-Wheeler Co.		
BENJAMIN FRANKLIN WALTON,	B.S. 1894,	Raleigh, N. C., R. 1.
Farmer.		
EDMUND FARRIS WARD,	B.Agr. 1907,	Smithfield, N. C.
Member of the firm of Abell & Ward, Lawyers.		
HUGH WARE,	B.S. 1899,	Kings Mountain, N.C.
Farmer.		
CHARLES AUGUSTUS WATSON,†	B.S. 1901,	Raleigh, N. C.
JAMES HUNTER WATSON,	B.S. 1911,	Raleigh, N. C.
JORDAN LEA WATSON,†	B.S. 1897,	Atlanta, Ga.
M.E., 1899.		
WALTER WELLINGTON WATT, JR.,	B.E. 1905,	Charlotte, N. C.
Engineer and Salesman, Fred H. White, Complete Mill Equipment.		
JAMES WIGGINS WATTS, JR.,	B.E. 1914,	Norfolk, Va.
General Inspector, C. & P. Telephone Co. of Virginia.		
EDWARD HOWERTON WEATHERSPOON,	B.E. 1914,	New York, N. Y.
Electrician, U. S. Navy, on Board U. S. S. "Delaware."		
LINDSAY MARADE WEAVER,	B.E. 1907,	Lexington, N. C.
With Dacotah Cotton Mills, Inc.		
MARION EMERSON WEEKS,	B.E. 1904,	South Bethlehem, Pa.
With Ordnance Department, Bethlehem Steel Co.		
CLEVELAND DOUGLAS WELCH,	B.E. 1902,	Mayesworth, N. C.
Superintendent, Mayes Manufacturing Co.		
HOWARD WALDO WELLES, JR.,	B.E. 1910,	Philadelphia, Pa.
With Engineering Office, Commercial Truck Company of America.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
JOHN JACKSON WELLS,	B.E. 1907,	Rocky Mount, N. C.
Civil Engineer.		
ALBERT CLINTON WHARTON, JR.,	B.S. 1904,	Clemmons, N. C.
Farmer and Stock Breeder.		
FRED BARNETT WHEELER,	B.E. 1912,	West Raleigh, N. C.
Instructor, North Carolina College of Agriculture and Mechanic Arts.		
DAVID LYNDON WHITE,	B.Agr. 1907,	Charlotte, N. C., R. 9.
Superintendent Sulby Lodge Farm.		
JONATHAN WINBORNE WHITE,	B.S. 1903,	State College, Pa.
M.S. 1912, Univ. of Illinois. Assistant Professor of Experimental Agronomy, Pennsylvania State College.		
ROYALL EDWARD WHITE,	B.E. 1908,	Aulander, N. C.
Postmaster.		
CECIL BERNARD WHITEHURST,	B.E. 1907,	Richmond, Va.
Power Apparatus Specialist, Western Electric Co.		
JOSEPH SLAUGHTER WHITEHURST,	B.E. 1909,	Elizabeth City, N. C.
Civil Engineer.		
EDWIN SEYMORE WHITING,†	B.E. 1903,	Hamlet, N. C.
GAITHER HALL WHITING,†	B.S. 1900,	Raleigh, N. C.
LEVI ROMULUS WHITTED,	B.S. 1896,	Washington, D. C.
C.E. 1897. Superintendent of Construction, U. S. Public Buildings, with U. S. Treasury Department.		
ARCHIE CARRAWAY WILKINSON,	B.E. 1905,	Augusta, Ga.
Civil Engineer, Georgia Railway.		
CHARLES BURGESS WILLIAMS,	B.S. 1893,	West Raleigh, N. C.
M.S. 1896. Vice-Director and Chief of Division of Agronomy, N. C. Agricultural Experiment Station.		
CLAUDE B. WILLIAMS,	B.S. 1899,	Elizabeth City, N. C.
Physician.		
HENRY LLOYD WILLIAMS,	B.S. 1896,	Cofield, N. C.
General Manager Mills, Cofield Manufacturing Co.		
JOHN C. WILLIAMS,	B.E. 1908,	Richmond, Va.
With Virginia Railway and Power Co.		
JAMES HARLEY WILLIAMS,	B.E. 1906,	Savannah, Ga.
Financial Secretary, Y. M. C. A.		
ALVIN CHESLEY WILSON,	B.E. 1913,	Schenectady, N. Y.
Student Testman, General Electric Co.		
ARTHUR JOHN WILSON,	B.S. 1907,	Chattanooga, Tenn.
M.S. 1908. Ph.D. 1911, Cornell. Professor of Chemistry, Chattanooga University.		
JOHN MCCAMY WILSON,	B.E. 1894,	Atlanta, Ga.
Refrigerating Engineer, Atlanta Ice and Coal Corporation.		

† Deceased.

Name.	*Degree.*	*Address.*
JOHN SPICER WILSON,	B.E. 1909,	Winston-Salem, N. C.
WALTER BOOKER WINFREE,	B.S. 1911,	Wadesboro, N. C.,R.3.
	Farmer.	
EDWARD LEIGH WINSLOW,	B.E. 1910,	Puerto Barrios, Guatemala.
	With United Fruit Co. Home Address, Hertford, N. C.	
LEWIS TAYLOR WINSTON,	B.Agr. 1906,	Big Stone Gap, Va.
	Accountant, General Offices, Stonega Coke and Coal Co., Inc.	
HOWARD WISWALL, JR.,	B.E. 1895,	Florence, S. C.
	Civil Engineer.	
PAUL ADAMS WITHERSPOON,	B.E. 1909,	Walkerton, Ind.
	Assistant Superintendent, B. & O. Railroad.	
BRADLEY JEWETT WOOTEN,†	B.S. 1897,	Wilmington, N. C.
OWEN ZELOTES WRENN,	B.E. 1914,	Rocky Mount, N. C.
	Assistant to Superintendent J. T. Rogers Co. of Moorestown, N. J. Postoffice Construction.	
BENJAMIN VAIDEN WRIGHT,	B.E. 1901,	Laurel, Miss.
	Chief Engineer, N. O., M. and C. R. R.	
MARION FULLER WYATT,	B.E. 1911,	Raleigh, N. C.
	Vice-President Job P. Wyatt & Sons Co.	
ROBERT JOB WYATT,	B.E. 1909,	Raleigh, N. C.
	Treasurer Job P. Wyatt & Sons Co.	
CHARLES GARRETT YARBROUGH,	B.E. 1895,	Los Angeles, Cal.
	District Superintendent of Service Department, Westinghouse Electric and Manufacturing Co.	
LOUIS THOMAS YARBROUGH,	B.E. 1893,	Greensboro, N. C.
	Postoffice Inspector.	
WOODFIN BRADSHER YARBROUGH,	B.E. 1908,	Morenci, Ariz.
	With Detroit Copper Mining Co.	
SAMUEL MARVIN YOUNG,	B.E. 1893,	Raleigh, N. C.
	Traveling Salesman, Sayers Mercantile Agency, of St. Louis, Mo.	
JOHN FRANKLIN ZIGLAR,	B.E. 1908,	Winston-Salem, N. C.
	Member of the Firm of Hinshaw & Ziglar, Civil Engineers.	

† Deceased.

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CATALOGUE

RICULTURAL AND MECHANICAL COLLEGE RECORD

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No. 4

MARCH, 1916

WEST RALEIGH, N. C.

The Agricultural and Mechanical College Record is published quarterly by the College and is entered at the postoffice at West Raleigh, N. C., as second-class matter.

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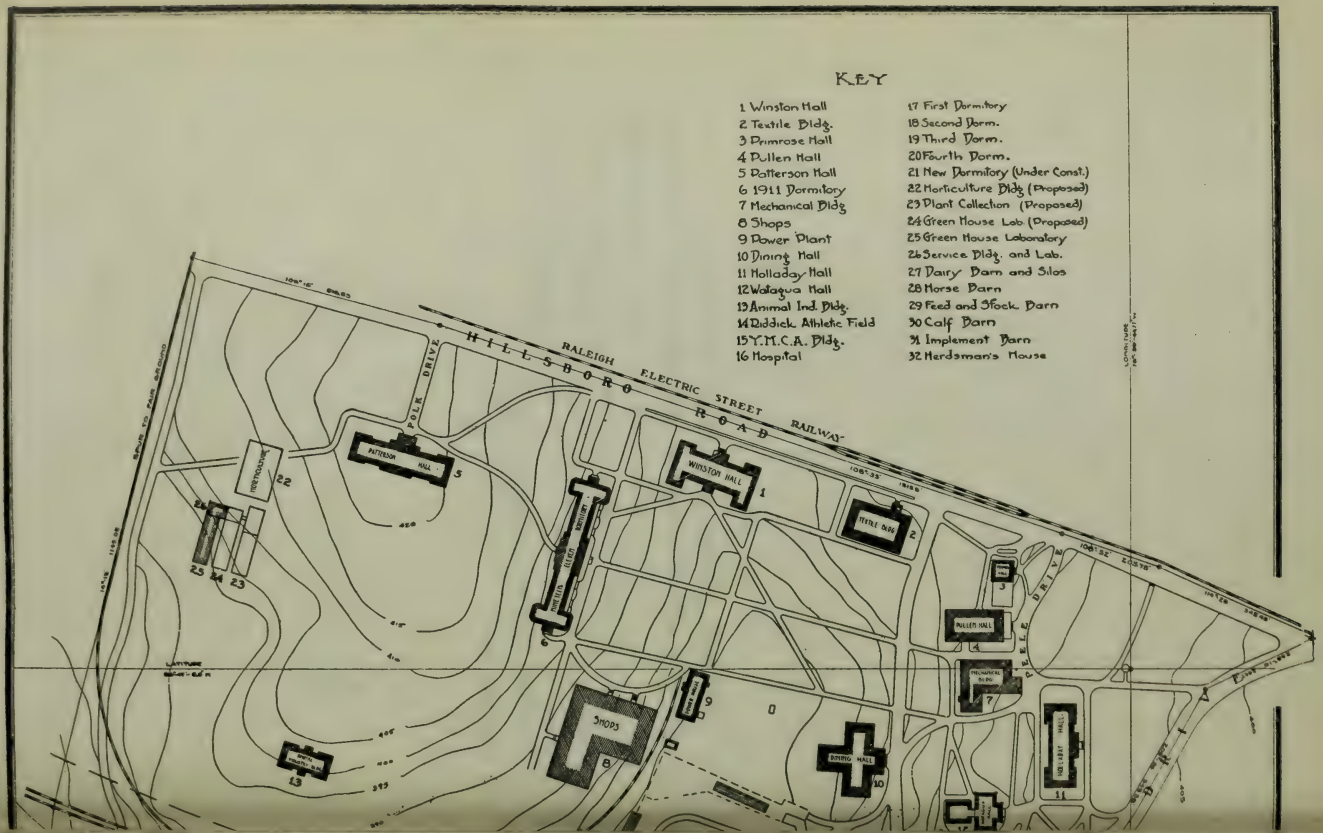
REGISTRAR, A. AND M. COLLEGE,
West Raleigh, N. C.


KEY
1 Winston Hall
2 Textile Bldg.
3 Primrose Hall
4 Pullen Hall
5 Patterson Hall
6 1911 Dormitory
7 Mechanical Bldg
8 Shops
9 Power Plant
10 Dining Hall
11 Holladay Hall
12 Watauga Hall
13 Animal Ind. Bldg.
14 Riddick Athletic Field
15 Y.M.C.A. Bldg.
16 Hospital
17 First Dormitory
18 Second Dorm.
19 Third Dorm.
20 Fourth Dorm.
21 New Dormitory (Under Const.)
22 Horticulture Bldg (Proposed)
23 Plant Collection (Proposed)
24 Green House Lab (Proposed)
25 Green House Laboratory
26 Service Bldg. and Lab.
27 Dairy Barn and Silos
28 Horse Barn
29 Feed and Stock Barn
30 Calf Barn
31 Implement Barn
32 Herdsman's House
HILLSBORO ROAD
RALEIGH ELECTRIC STREET RAILWAY
POLE DRIVE
PATTERSON HALL
WINSTON HALL
TEXTILE BLDG.
PULLEN HALL
SHOPS
DINING HALL
HOLLADAY HALL
HORTICULTURE
DAIRY BARN
HORSE BARN
CALF BARN
IMPLEMENT BARN
HERDSMAN'S HOUSE
FEED AND STOCK BARN
ANIMAL IND. BLDG.
POWER PLANT
MECHANICAL BLDG.
1ST DORM.
2ND DORM.
3RD DORM.
4TH DORM.
NEW DORMITORY
Y.M.C.A. BLDG.
HOSPITAL
RIDDICK ATHLETIC FIELD
GREEN HOUSE LAB
GREEN HOUSE LABORATORY
SERVICE BLDG. AND LAB.
PLANT COLLECTION
LIVESTOCK JUDGING PAVILION
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TOPOGRAPHIC MAP
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Plotted by W.C. Hopkins - Party No. 2 May 20, 1912
WEST - RALEIGH
REVISED By R. I. POOLE C.E. March 1913.

THE

NORTH CAROLINA COLLEGE

OF

AGRICULTURE AND MECHANIC ARTS

WEST RALEIGH

1915-1916

RALEIGH
EDWARDS & BROUGHTON PRINTING COMPANY
STATE PRINTERS AND BINDERS
1916

Calendar

1916

JANUARY

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COLLEGE CALENDAR.

1916.

Thursday,	June	1.	Summer Term for Teachers begins.
Thursday,	July	13.	Entrance examinations at each county courthouse, 10 a.m.
Wednesday,	September	6.	Entrance examinations at the College, 8:30 a.m.
Thursday,	September	7.	First Term begins; Registration Day.
Thursday,	November	23.	Thanksgiving Day.
Thursday,	December	21.	First Term ends.

1917.

Thursday,	January	4.	Second Term begins; Registration Day.
Tuesday,	January	9.	Winter Course in Agriculture begins.
Sunday,	May	27.	Baccalaureate Sermon.
Monday,	May	28.	Alumni Day. Annual Oration.
Tuesday,	May	29.	Commencement Day. Annual Meeting of Trustees.

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A.B. 1883, A.M. 1885, Davidson College; Fellow in Chemistry, 1889-1890, Cornell University.

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A.M. 1889, Wake Forest College.

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Preston (England) Technical School.

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B.S. 1886, M.S. 1887, Alabama Polytechnic Institute.

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A.B. 1890, Certificate in Electrical Engineering 1892, Johns Hopkins University.

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B.S. 1904, M.E. 1909, Purdue University.

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B.S. 1886, S. C. Military Academy; Ph.D. 1891, Johns Hopkins University.

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B.Agr. 1899, B.S. 1900, University of Missouri; D.V.S. 1903, Kansas City Veterinary College.

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B.S. 1910, Pennsylvania State College.

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B.S. 1908, University of Missouri; M.S. 1909, University of California.

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C.E. 1906, N. C. College of Agriculture and Mechanic Arts.

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M.S. 1909, Colorado Agricultural College; D.V.M., Kansas City Veterinary College.

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GENERAL INFORMATION.

During the years in which North Carolina was emerging from the economic havoc wrought by Civil War and Reconstruction, some farsighted men began to see the necessity of rearing industrially equipped men. They felt keenly the need of competent men to build and direct new industries, and to restore the land which had been impoverished partly by slave labor. They recognized that men capable of doing what was needed would have to be educated in industrial schools and technical colleges.

The first organized body to take steps for the establishment of a State industrial institution in North Carolina was the Watauga Club. This club, composed of bright young men, explained its mission by declaring that it was "an association in the city of Raleigh designed to find out and make known information on practical subjects that will be of public use." In 1885 this club presented to the Legislature a memorial urging that body "to establish an industrial school in North Carolina which shall be a training place for young men who wish to acquire skill in the wealth-producing arts and sciences."

This memorial quickened general interest in the proposed school, and several bills looking to its foundation were introduced in the Legislature of 1885. On March 7th, one of these bills, introduced by Hon. Augustus Leazar, of Iredell County, became a law. This law provided that the Board of Agriculture should seek proposals from the cities and towns of the State, and that the school should be placed in the town offering the most inducements. The Board of Agriculture finally accepted an offer from the city of Raleigh.

Meantime, the ideas of the advocates of the school had been somewhat broadened as to the character of the proposed institution.

These men saw that Congress was about to supplement the original land grant by an additional appropriation for agricultural and mechanical colleges in each State. The originators of the conception then sought the aid of progressive farmers in order to change the school into an Agricultural and Mechanical College. Col. L. L. Polk, the editor of the newly-established Progressive Farmer, threw the weight of his paper heartily into the idea. Meetings were held in various places, and two very large meetings in Raleigh considered the proposition. As a result, the school already provided for was by action of the Legislature of 1887

changed into an Agricultural and Mechanical College, and the Congressional Land Scrip Fund was given the newly formed institution. In addition, the law directed that any surplus from the Department of Agriculture should go into the treasury of the college. Mr. R. Stanhope Pullen, one of Raleigh's most broad-minded citizens, gave the institution eighty-three acres of land in a beautiful suburb of Raleigh. Additional funds were afterwards provided by the Supplemental Morrill Bill passed by Congress in 1890, by the Nelson Bill of 1907, and by State appropriations. The first building was completed in 1889, and the doors of the College were opened for students in October, 1889. Seventy-two students, representing thirty-seven counties, were enrolled the first year. The faculty consisted of six full professors and two assistants. From this small beginning in 1889, the College has grown steadily from year to year.

The College is beautifully located on the extension of Hillsboro Street in the western suburbs of Raleigh, a mile and a quarter from the State Capitol. The site is suitable in all respects.

There is an abundant supply of water from the city mains and from twelve deep wells on the College grounds. The water is analyzed, both chemically and bacteriologically, at regular periods.

The College now owns four hundred and eighty-six acres of land. Fifteen hundred young trees and nine hundred and forty vines are growing in an orchard of twenty-five acres. Seven acres are devoted to truck growing. The campus consists of about thirty acres of rolling land, which is being improved as rapidly as circumstances permit.

BUILDINGS.

The buildings, numbering twenty-seven in all, are grouped as follows: the academic buildings; the social life buildings; and the farm buildings.

I. The academic buildings are as follows:

1. Holladay Hall.—This, the administration building of the College, is of brick with brownstone trimmings. It is 170 feet long by 64 feet deep; part of the building is four stories and the remainder two. The first floor is devoted to the lecture-rooms and laboratories of the Physics Department. The second floor contains the offices of the President, the Dean of the Faculty, the Commandant, Registrar, and the Bursar. In addition, six lecture-rooms are located on this floor. The upper stories are used by students.

2. Patterson Hall.—This is the largest of the Agricultural buildings. It is a three-story buff press-brick structure, with granite

trimmings, and is 204 feet long by 74 deep. The basement floor contains a very commodious dairy with wash-rooms and sterilization chamber. It also contains mailing rooms for bulletins. The second floor provides room for the offices of the Experiment Station, for offices, lecture-rooms, and laboratories for the departments of Agronomy, Horticulture, Soils, and Agricultural Extension. On the third floor are the rooms devoted to the offices, lecture-rooms, and laboratories of the departments of Botany and Plant Pathology, and of Physiology and Veterinary Medicine. This building contains excellently equipped laboratories, and is well lighted and ventilated. Each section of the building was designed for its specific function, and hence admirably meets the requirements of these departments.

3. Animal Husbandry Building.—This new building is a three-story brick structure, and has white brick and cement trimmings. One-half of the first floor is given to the Poultry Department. The other half is devoted to a stock-judging room. The offices, lecture-rooms, and laboratories of the Animal Husbandry Department take up all the second floor. The third floor is assigned to the Department of Entomology and Zoology. In addition to offices and laboratories, this floor contains a photographic room and a museum.

4. Winston Hall.—This is the Civil and Electrical Engineering building. It is built of brick, with reinforced concrete floors, three stories high, including the basement. It consists of a main section, 104 by 58 feet, with two wings, each 91 by 32 feet. The basement contains the laboratories and instrument rooms of the departments of Electrical and Civil Engineering. The main floor has the lecture, recitation, and drafting rooms, and the offices of the same two departments. The second floor contains the lecture and recitation rooms and the laboratories and offices of the Department of Chemistry and the Chemical Department of the State Experiment Station.

5. Mechanical Engineering Building.—A plain substantial two-story brick building furnishes room for the drawing rooms, recitation rooms, and offices of a portion of the force in the Mechanical Engineering Department.

6. Textile Building.—This is a two-story brick building, 125 by 75 feet, with a basement. Its construction is similar to that of a cotton mill, and is an illustration of standard construction in this class of buildings. The basement contains the dyeing department, the first floor the looms and warp preparation machinery, and the second floor the carding and spinning machinery.

7. Primrose Hall.—Built originally for the Horticultural Department, this building, one-story and a basement, is now used for classrooms.

8. Central Power Plant.—Heat, light, and power for all the College buildings are furnished from this central station. The boiler plant consists of two 75-horsepower Babcock and Wilcox boilers and two 100-horsepower Atlas Water-tube boilers, with a working steam pressure of 150 pounds. The engine plant embraces a 100-horsepower Skinner engine and a Crocker-Wheeler generator attached; a 100 k. w. DeLaval turbine generator set with exciter; and steam and vacuum pumps for feeding the boilers and maintaining circulation in steam-heating apparatus. The buildings are equipped with Warren-Webster system of heating.

9. Shop and Laboratory Building.—All of the shop work, which includes practice in wood working, forging, machine shop and foundry, is given in the new shop building. The Mechanical Engineering laboratory is also in this building. It is a one-story and part basement structure of brick, with steel roof trusses and asbestos shingle roof. Steel sash are used throughout, and an unusual amount of light is provided. Part of the basement will be used for a portion of the Mechanical Engineering laboratory and a part for storage of materials of various kinds. The main floor consists of a machine shop 47 by 100 feet, a laboratory room 45 by 100 feet, a wood shop, 50 by 120 feet, a foundry, 35 by 75, and a forge shop, 35 by 75 feet. Provision is also made for demonstration rooms, offices and tool rooms. A wide entrance hall provides space for the exhibition of work done by students and exhibitions showing the different processes in the manufacture of many well known articles. The building is L-shaped, one dimension being 170 feet and the other 195 feet.

10. A greenhouse, with a small service building attached, serves in part as a place for instruction in cultivating plants under glass.

The Fire Protection of the College consists of the following equipment: A standpipe and reservoir, hose and hose reels. Hydrants are conveniently located about the grounds, with attached hose nozzles, etc. The buildings are supplied with chemical extinguishers.

II. The social life buildings are as follows:

1. Pullen Hall.—The basement of this large three-story colonial brick building is used as an armory. The first floor gives quarters for a splendidly-lighted reading-room and library and two lecture-rooms. The second story serves as the College auditorium, and seats about one thousand people.

2. Dining Hall.—This building, which will seat seven hundred and fifty students, is 144 by 54 feet. It is trimmed with Indiana limestone and white brick. Attached to this dining hall is a large kitchen, which is supplied with a complete modern outfit of kitchen conveniences and utensils. Serving rooms, storerooms, preparation rooms, and every needful adjunct have been provided.

3. The Y. M. C. A. Building.—The Young Men's Christian Association Building, which was opened January 31, 1913, is a three-story red brick building with Indiana limestone trimming. This building is the home of all the voluntary student activities, and is under the supervision of the Young Men's Christian Association. The basement floor contains a small gymnasium, bowling alleys, a locker-room, shower baths, toilets, and athletic rooms. The main floor contains a large lobby, a reading-room well equipped with daily papers and magazines, a game room, an auditorium, a banquet hall with pantry and kitchen attached, a committee room, a library, a kodak dark-room, four bedrooms for visitors, offices for the College weekly, monthly, and annual publications, and offices of the Association. The third floor contains two large literary society halls, a cabinet room, a Bible study and a Mission study room. The building is handsomely equipped with mission furniture throughout.

4. Infirmary.—The College hospital is a two-story brick building, to which two wards have just been added. In addition to these wards there are four separate rooms, three bathrooms, an office for the College physician, and rooms for the head nurse, and a kitchen. The rooms are well ventilated, carefully lighted, and heated by steam. The furniture and equipment are modern and sanitary.

5. Watauga Dormitory.—Rooms for one hundred and twenty students are provided by this three-story brick dormitory. A large bathroom is located in the basement of this building.

6. Nineteen-Eleven Dormitory.—This is the largest and most complete dormitory on the grounds. It is divided into sections by fireproof walls, and each section is practically a separate house. It furnishes rooms for two hundred and forty students. Large and convenient bathrooms are located in the basement of the building.

7. First Dormitory.—This two-story brick dormitory has ten rooms and affords accommodations for twenty students.

8. Second Dormitory.—Built on the same plan as the First Dormitory, this building affords a college home for twenty students.

9. Third Dormitory.—Twenty students also find rooms in this small dormitory.

10. Fourth Dormitory.—This is a three-story mansard-roofed brick structure, and furnishes rooms for forty-eight students.

11. The Legislature of 1915 appropriated twenty thousand dollars for buildings. With this amount one wing of a handsome brick dormitory was completed. This wing furnishes rooms for forty-eight students.

Temporary Wooden Dormitories for Some Students.—In the summer of 1913, the College found itself confronted by a serious dilemma. All the rooms in its permanent dormitories were engaged. No appropriation for building a new dormitory was available. Many deserving young men who wanted to fit themselves to do an educated man's work in the industrial world were asking for admittance. Rather than close its doors to these young men whom the State is needing for its material development, the trustees of the College decided to build some cheap wooden dormitories for such earnest young men as were willing to live in them rather than miss their opportunity for a technical education. These buildings are furnished just as the other dormitories are, and are lighted by electricity. While unsightly, they are sanitary and comfortable.

III. The farm buildings constitute the third group of College buildings. These are as follows:

1. A large sanitary dairy barn.—This barn has stalls and feed-rooms for fifty cows. This barn is abundantly aired and lighted, is equipped with James sanitary fixtures, and has cement floors.

2. A barn for the work stock.—Stalls for most of the work animals and some overhead storage are supplied by this barn.

3. A storage barn.—This barn gives storage for feedstuffs for the dairy, and is also equipped with stalls for the Percheron horses.

4. A fertilizer and implement barn.—A commodious barn, which provides room for instruction in mixing fertilizers and storage for the farm implements and machines.

5. The Experiment Station barn.—This convenient building is located on the College farm and houses the work stock of the Station.

6. A calf barn.—The young stock of the College are provided with separate stalls and feeding rooms in a comfortable building on the farm site.

7. The foreman's home.—A cottage near the barns is occupied by the foreman of the College farm and by the herdsmen.

8. The Horticulturist's home.—In order that he may be near his work, the Horticulturist is provided with a home in the center of the orchard.

9. The Poultry Plant.—The plant for the poultry department consists of the home of the instructor in charge, incubator and brooding house, and pens for all the fowls, and is situated just opposite the Horticultural farm, on Hillsboro Road.

THE AGRICULTURAL EXPERIMENT STATION.

The North Carolina Agricultural Experiment Station was established originally as a division of the State Department of Agriculture, in accordance with an act of the General Assembly, ratified March 12, 1877. Its work was greatly promoted by act of Congress of March 2, 1887, known as the Hatch Act, which made a donation to each State for the purpose of investigations in agriculture, and for publishing the same. The funds of the Experiment Station were further supplemented by the act of Congress of March 16, 1906, known as the Adams Act. Under the requirements of the Hatch Act, the Station became a department of the College and was conducted jointly by the College and the Department of Agriculture from 1889 to 1907, with the exception of three years. Under an agreement entered into between the Board of Trustees of the College and the Board of Agriculture in January, 1912, and authorized by act of the Legislature of 1913, the work of the Experiment Station, which covers all of the experimental work in agriculture in the State, is jointly conducted and supported by the College and State Department of Agriculture.

The experimental work in the field in agriculture, horticulture, stock and poultry raising, dairying, etc., is conducted on the College farm and on the test farms of the Department of Agriculture in different parts of the State, and the laboratory investigations are conducted in the laboratories of the two institutions.

The Station is always glad to welcome visitors and to show them the work in progress. The Station conducts a large correspondence with farmers and others concerning agricultural matters. It takes pleasure in receiving and answering questions.

Bulletins relating to general farm matters, embodying the results of the experiments, are sent free to all citizens of the State who request them. A request addressed to the Agricultural Experiment Station, West Raleigh, will bring these publications. The Station is glad also to answer letters of inquiry.

AGRICULTURAL EXTENSION SERVICE.

Yearly increasing amounts of Extension work have been done by the North Carolina Department of Agriculture, the College of Agriculture and Mechanic Arts, and the Experiment Station since their organization. At first this took the form of analyses of fertilizers, marls, phosphates, composts, and various agricultural products, and advice on these several matters. Farmers' Institutes were started at a later date and are continued at the present, and other forms of Extension service have been conducted along a number of lines. In 1906 Farm Demonstration work, through county agents and special workers, was begun, and Boys' and Girls' Clubs were soon made a part of it.

This division conducts the Corn Clubs, Poultry Clubs, Pig Clubs, and Crop Rotation Clubs for the boys and girls of the State, and the Canning Clubs for the girls. The active membership of these clubs is confined to young people between the ages of ten and eighteen years, but adults are permitted to join the Pig, Poultry, and Rotation clubs, and get all instructions sent the active members. In these clubs the young people are taught to grow crops or animals upon their own farms according to the teachings of modern science, and are shown the wonderful possibilities of farming in accordance with a few fundamental scientific laws.

In addition to the instruction through monthly letters, bulletins, and visits of the Extension workers, club schools are held at the farm-life schools and at county-seats during the summer, at which the members are given two or three days of technical instruction.

There is also held at the Agricultural and Mechanical College during each August a one-week Short Course for members of all the clubs conducted by the Extension Division.

In January, 1912, under an agreement entered into between the Board of Trustees of the College and the Board of Agriculture, and authorized by an act of the Legislature in 1913 (chapter 68, Public Laws of 1913), all of the Extension and Demonstration work in the State was brought together and conducted jointly by the two institutions, in coöperation with the United States Department of Agriculture.

The Congressional Smith-Lever Act of May 8, 1914, has made possible a larger development of the Extension Service. The Extension Service has for its main object the carrying of new facts and good practices obtained in experimental work and in good farming to the farmers and farm women of the State, through county men and

women agents and workers in special lines. These workers spend most of their time in the field in efforts to bring about better farming, better homes, coöperation among farmers, marketing farm products, etc.

The Extension forces at headquarters are housed in the buildings of the College of Agriculture and Mechanic Arts and of the State Department of Agriculture, offices and conveniences for work having been supplied by these two institutions, and in the main equipped.

THE PURPOSE OF THE COLLEGE.

The College is an institution where young men of character, energy, and ambition may fit themselves for useful and honorable work in many lines of industry in which training and skill are requisite to success. It is intended to train farmers, mechanics, engineers, architects, draughtsmen, machinists, electricians, miners, metallurgists, chemists, dyers, mill workers, manufacturers, stock raisers, fruit growers, truckers, and dairymen, by giving them not only a liberal, but also a special education, with such manual and technical training as will qualify them for their future work.

It offers practical and technical education in Agriculture, Horticulture, Animal Industry, Civil Engineering, Mechanical Engineering, Electrical Engineering, Chemistry, Dyeing, Textile Industry, and Agriculture. It also offers practical training in Carpentry, Woodturning, Blacksmithing, Machinist's work, Mill work, Boiler tending, Engine tending, Dynamo tending and Installation, Electric-light Wiring, Armature Winding, and other subjects relating to practical electricity.

Although the leading purpose of the College is to furnish technical and practical instruction, yet other subjects essential to a liberal education are not omitted. Thorough instruction is given in English, Mathematics, Political Economy, Physics, Chemistry, Botany, Zoology, Physiology, and Geology.

The College is not a place for young men who desire merely a general education without manual or technical training, nor for lads lacking in physical development, mental capacity, or moral fiber, nor for those who are unable or unwilling to observe regularity, system, and order in their daily work.

WHAT THE COLLEGE EXPECTS OF ITS STUDENTS.

The College does not have many rules. It expects that its students will live rightly for their own sakes and for the sake of

the State that is educating them. The fundamental law of the College is this: Always and everywhere, be a gentleman.

A record is kept of every student. If it is apparent from this record that a student is not studying or that his conduct is not meeting the requirements of the College, such student will be required to withdraw. Scandalous, vicious, or immoral conduct will necessitate an immediate dismissal.

Students attend this College, of course, to fit themselves for a technical business life. They are therefore expected to be business-like in their habits; to be prompt in their attendance and regular at chapel, classes, shops, drills, inspections, and all other duties. To prepare themselves for their daily work, students are expected to observe in their own rooms the regular morning and evening hours of study, and to be absent from College only at the regularly specified periods. These periods are as follows: For Juniors Friday, Saturday, and Sunday nights; for Sophomores, Saturday and Sunday nights; for Freshmen, Sunday nights. Saturday and Sunday afternoons are liberty afternoons.

Students are expected to keep their rooms neat and sanitary; to refrain from disturbing one another by noise in the buildings or on the grounds—in short, to conduct themselves in their College home with the same courtesy, self-respect, and propriety that they do in their own homes.

Visiting poolrooms, leaving College after 11 o'clock at night, continued cigarette smoking, wilful destruction of College property, drinking, immorality, gambling in all forms, hazing of any kind, disrespect to members of the Faculty or officers of the College, any conduct unbecoming a gentleman—these offenses it is expected that a student's self-respect will lead him to abstain from, and should any student be found guilty of them he will be excluded from College.

REPORTS AND SCHOLARSHIP.

Regular reports of scholarship and conduct are sent to parents and guardians at the end of each term. Special reports are made whenever necessary. Whenever a student fails on a subject during a month, such failure is reported to his parents. Students who are persistently neglectful of duty, or manifestly unable to do the work required, will be discharged at any time. The Faculty will require any student to withdraw whenever it is plain that his stay in the institution is not profitable to himself nor to the College.

RELIGIOUS INFLUENCES.

All students are required to attend chapel exercises in Pullen Auditorium each morning. These services are conducted by the President, by some member of the Faculty, or by some visiting minister or layman.

Each student is expected to attend religious service in Raleigh on Sunday morning at the church of his choice. The students are always welcomed in the Sabbath schools of Raleigh, and a large number of them attend these services.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

The Young Men's Christian Association is a voluntary organization among the students for the purpose of centralizing and directing the moral and religious life of the student body. The work is under the direction of a General Secretary, who is employed to give his entire time to the work, and of the following student officers: president, vice-president, corresponding and recording secretaries, and treasurer. Active assistance is also given by an Advisory Committee, which includes three members of the Faculty and six prominent business men in Raleigh. The president and treasurer of the Association are *ex officio* members of this committee.

Membership is open to all College students of good moral character. Only members of evangelical churches may become active members.

A hand-book, giving general information about the College, is published each spring and sent to prospective students, with a personal letter of welcome from the officers of the Association.

A large number of men are trained each year in active Christian service through membership on the following standing committees, all of which are trained by the General Secretary in their particular work: Bible Study Committee, which has charge of the organization of voluntary Bible Study classes among the students, and in this way seeks to reach all of the non-Christian element of the student body; Religious Meetings Committee, which provides speakers and arranges programs for the weekly meetings of the Association; Mission Study Committee, which provides for Mission Study among the students; Membership Committee, which seeks to enlist students as members of the Young Men's Christian Association; Social Committee, which provides means of social entertainment and diversion; and Finance Committee. Each committee is held responsible for its part of the Association activities.

The Association is supported by gifts from the Board of T tees, the Faculty, and citizens of the State, and by its regular m bership fees. Although membership is voluntary, it is desired t all students should apply for membership, and thereby align th selves with an organization which will assist them in leading upright life while in college.

The Association occupies its own building on the campus, wh was erected at a cost of $41,000.

Parents or students wishing to obtain further information ab the work of the Association may do so by addressing the Gen Secretary, West Raleigh, N. C.

ATHLETICS.

The Athletic Association is organized by the student body to p mote physical health and manly spirit through athletic spo Under the direction of the Athletic Committee of the Faculty it p motes practice in baseball, basketball, football, track athletics, The Association employs a director who devotes all of his time to e interests of this department. The athletic park is situated in e center of the College campus. It is provided with a grandstand d uncovered seats and meets the needs of the various athletic team

It is the aim of the College to encourage participation in athl c sports by all students as far as possible. In order to promote in est in athletics the College teams are allowed to play a limited n ber of games with the teams of other colleges. While all stude s are allowed and encouraged to take part in intramural games, e College recognizes that college athletics are promoted for the ben t of its bona-fide students, and in order to prevent abuses the foll ing regulations in regard to intercollegiate games are in force:

Eligibility Rules of the North Carolina College of Agriculture a Mechanic Arts.

Any student of good and regular standing shall be eligible to p resent this College in athletic contests, subject to the follow conditions:

1. Before any student can become a member of any athletic te in the College and take part in any intercollegiate contest, he m t apply to the Faculty Committee on Athletics and secure its appro l of his application. It shall be the duty of the Faculty Committee Athletics to see that the said student is properly enrolled in e College.

2. It shall be the duty of the Athletic Committee to inquire into nd make record of the athletic experience of the applicant, and it nall be the duty of the applicant to appear before the committee nd answer on his honor such questions as the committee may see t to ask.

3. No student shall take part in any contest who has taken part in tercollegiate contests for four academic years, either at this Colge or at any other college or university.

4. No student shall participate who is receiving, has received, or as been promised, directly or indirectly, any money or financial oncessions as compensation for, or prior consideration to his aying.

5. No student shall participate in athletic sports who does not atriculate within thirty (30) days of the opening date of the curnt session.

6. No student shall participate who has played baseball on any ague team belonging to the National Association, or to any league cognized by the National Baseball Commission as an "outlaw ague"; or who has missed any time from College work in order to ay on any organized so-called "summer baseball team."

7. No student who is recognized by the Athletic Council as a memr of any team shall be eligible the following session, unless he has mained as a resident student two-thirds of the preceding session, d can give satisfactory reason for not remaining the whole session.

8. No graduate student who is not a bona-fide applicant for a dee conferred by this College shall be allowed to participate.

9. No person whose name appears in the Catalogue list of officers instruction or administration of the College and who receives muneration therefor shall be a member of any athletic team repsenting the College.

10. No undergraduate student shall take part in any athletic const who is not pursuing one of the regular prescribed courses of struction or its equivalent, nor will he be allowed to participate if s class work be unsatisfactory.

11. No student shall be allowed to represent the College in any tercollegiate contest during any month if he has been reported cficient on a majority of his work for the preceding month.

12. No student who has been a member or a substitute member of e football or baseball team of another college or university during e preceding year shall be permitted to become a member of either m at this College during his first session. In no case shall such dent be eligible for these teams at this College unless he shall ve been a student here for at least one-half of the preceding ses-

sion; and no student who is unable to pass examination on two-thirds of the work required for admission to the Freshman class shall be allowed to participate until he has been in College one term.

13. The object of these rules is to allow only bona-fide students to take part in athletic contests, and if it shall appear to the Faculty and Athletic Committee that any student is, or has ever been, a professional athlete, or that he is in college for the purpose of taking part in athletics and not of getting an education, such student shall not be allowed to represent the College in any athletic contest.

Note 1.—The term substitute is interpreted to mean any student who has taken part in two or more intercollegiate contests.

Note 2.—The term college is interpreted to mean any college named in the latest report of the Commissioner of Education which has as many as one hundred and fifty male students of collegiate grade recorded in its catalogue for the preceding year.

Note 3.—The term session is interpreted to mean a college year of two terms.

LIBRARY AND READING-ROOM.

The College Library occupies the first story of Pullen Hall. The reading-room is supplied regularly with about one hundred and fifty magazines and journals of various kinds, and yearly additions are being made to this number. The library contains about eight thousand volumes. There are also reference libraries in the different departments. The library is kept open from 9 a. m. to 6 p. m. The Librarian is always present to assist students in finding desired information.

The Olivia Raney Library in Raleigh is free to students, and they have the privilege of borrowing books from it.

Students are also allowed to consult books in the **State Library**.

STATE MUSEUM.

Students have free access to the large collections of the State Museum. These collections furnish most excellent opportunities for studies in Geology, Mineralogy, Mining, Forestry, and Natural History.

COLLEGE SOCIETIES.

Such college organizations are encouraged as tend to form good character, to develop manly physical vigor, and to promote literary, scientific, and technical research and training.

The Biag Society is composed of those students who have made the best record in biological and agricultural subjects. The mem

bership is limited to twelve. The society meets monthly for the discussion of biological and agricultural questions.

Farmers' Progressive Association.—The students in the Winter Course in Agriculture meet every Wednesday night during the winter term for a discussion of practical problems. The meetings are conducted in the manner of a Farmers' Institute, and give training in conducting farmers' meetings, in *ex tempore* speaking on agricultural questions, and in the writing and reading of reports on various farm operations.

The Rural Science Club meets semimonthly for the discussion of agricultural subjects, review of current agricultural publications, and reports on personal experiments and the work of the College farm and Experiment Station.

The Biological Club meets semimonthly for the discussion of biological subjects in their relation to practical agriculture. Students here present results of their own investigations and observations and reviews of the more important current publications, particularly those from the United States Department of Agriculture and the State Experiment Stations.

The Tompkins Textile Society.—The purpose of this society is to discuss textile problems and other subjects in connection with the textile industry. Meetings are held fortnightly, and great interest is taken in them by the textile students.

The Mechanical Engineering Society meets every week for the discussion of engineering subjects. The society is composed of Seniors and Juniors taking the Mechanical Engineering Course. Its work has proved very beneficial to its members.

Electrical Engineering Society.—A student branch of the American Institute of Electrical Engineers was organized at the College several years ago. It holds weekly meetings for the reading and discussion of papers. At convenient intervals the society makes trips for inspecting interesting electrical installations. From time to time addresses are made by visiting engineers.

Berzelius Society meets fortnightly for discussion of chemical topics, and for reports upon the leading articles in the chemical journals.

The Pullen and Leazar Literary Societies afford excellent opportunities for practice in declamation, debate, composition, and parliamentary law, as well as opportunities for social pleasure and recreation.

The Alumni Association meets each year on the Monday preceding Commencement Day, transacts its annual business, hears the

Alumni oration, and attends the annual Alumni banquet. Th association purposes raising funds to erect an Alumni building the College.

The Poultry Science Society is a society for the promotion of t interests of poultry study. Weekly meetings are held, at whi programs on poultry topics are carried out. Membership is open all students interested in the study of poultry subjects.

REQUISITES FOR ADMISSION.

Each applicant for admission must be at least sixteen years age and must bring a certificate of good moral character from t school last attended.

To the Four-year Courses.

Admission to the Freshman Class of all four-year courses is the unit system. A unit is defined as a subject pursued in scho of approved grade for five periods a week throughout the year, ea period being at least forty-five minutes in length. Each applica selecting from the subjects named in the lists below, must, on amination, make eight units, the credit on any one subject not exceed the value indicated. Of these eight units the following a required for all four-year courses:

Required Units.

Subjects.	Units.
Algebra	1½
English	2
United States History	1
Total units in required subjects	4½
Geometry (Engineering Courses and Chemistry)	½

The 1½ units required in Algebra must cover the subject to qu ratic equations.

Of the 2 units required in English, 1 unit must be in grammar a composition and 1 unit in literature.

Additional Units.

In addition to the four and one-half units in required subje given in above list, applicants wishing to take the Agricultu Course, the Veterinary Course, or the Textile Course must of

hree and a half units selected from the list below. Applicants vishing to enter an Engineering course or the Chemical course iust offer, in addition to the above required units, ½ unit in geomtry and three units selected from the list below. The ½ unit in eometry must include the first three books of Plane Geometry.

Elective Units.

Subjects.	Units.
griculture or Farm Practice	1
otany	½ or 1
ookkeeping	½
hemistry	½ or 1
ivics	½
rawing (Freehand or Mechanical)	½
nglish History	1
ediæval and Modern History	1
rench, German or Spanish	1
atin	2
anual Training	½
ill Practice	½
hysics	½ or 1
hysiology	½
oology	½ or 1

A full unit will be allowed for any one science only when the ubject has been given with laboratory practice.

Admission on Certificate.—Applicants for admission to the Freshian Class, who present certified statements from principals of igh schools or academies of approved standing that the applicant as satisfactorily completed the eight units required by the College, ill be admitted without further examination. These certificates iust be submitted to the Dean of the College for approval.

To the Two-year Courses.—Applicants for admission to the twoear courses in Agriculture, Mechanic Arts, and Textile Industry ill be examined on Arithmetic complete and Algebra through fracons, English Grammar and Composition, and American History.

To the One-year Course in Agriculture.—Applicants for admison to the One-year Course in Agriculture will be required to pass

on Arithmetic through decimal fractions, on English Grammar, and on United States History.

To the Winter Courses.—No entrance examination is required of candidates for admission to the winter courses. No one under eighteen years of age will be admitted to a winter course.

REQUISITES FOR ADMISSION IN 1917.

In 1917 and until notice of further change is given, eleven units will be required for unconditional admission to the Freshman Class of all four-year courses. Of these eleven units, eight and a half are in specified subjects; two and a half are elective.

Specified Subjects.

Subjects.	Units.
English	3
History	2
Mathematics	2½
Science	1
	8½

The explanation of the requirements is given below.

Elective Subjects.

In addition to these eight and a half specified units, two and a half elective units must be offered from the list of subjects given on page 39.

Explanation of Requirements.

English:	Units.
(a) Grammar and Composition	1
(b) Reading and Practice	1
(c) Study and Practice	1

(a) Grammar and Composition.—English grammar should be carefully reviewed during the high-school course, with special emphasis on correct terminology, the functions of the parts of speech, and the analysis of sentences. The study of composition is given system and unity by the use of a good text-book, but this should be accompanied

with frequent written and oral exercises. Without constant practice the study of the principles of composition is futile. It is suggested that the exercises be generally short, one page being sufficient, on subjects chosen from the student's personal experiences and observations, not exclusively from literature. The fundamentals in composition—correct spelling, punctuation, and grammar—should be insisted upon.

(b) Reading and Practice.—The aim of this course is to foster in the student the habit of intelligent reading and to develop a taste for good literature, by giving him a first-hand knowledge of some of its best specimens. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of what he reads. With a view to large freedom of choice, the books provided for reading are arranged in the following groups, from each of which at least two selections are to be made, except as otherwise provided under Group 1:

Group 1—Classics in Translation; two to be selected: The Old Testament, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther. Homer's *Odyssey*, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVII. Homer's *Iliad*, with the omission, if desired, of Books XI, XIII, XIV, XV, XVII, XXI. Vergil's *Æneid*. The Odyssey, the Iliad, and the Æneid should be read in English translations of recognized literary excellence. For any selection from this group a selection from any other group may be substituted.

Group 2—Shakespeare; two to be selected: Shakespeare's *Midsummer Night's Dream*, *Merchant of Venice*, *As You Like It*, *Twelfth Night*, *The Tempest*, *Romeo and Juliet*, *King John*, *Richard II*, *Richard III*, *Henry V*, *Coriolanus*, *Julius Cæsar*, *Macbeth*, *Hamlet*. (The last three only, if not chosen for study.)

Group 3—Prose Fiction; two to be selected: Malory's *Morte d'Arthur* (about 100 pages). Bunyan's *Pilgrim's Progress*, Part I. Swift's *Gulliver's Travels* (Voyages to Lilliput and to Brobdingnag). Defoe's *Robinson Crusoe*, Part I. Goldsmith's *Vicar of Wakefield*. Frances Burney's *Evelina*. Scott's novels: any one. Jane Austen's novels: any one. Maria Edgeworth's *Castle Rackrent*, or *The Absentee*. Dickens' novels: any one. Thackeray's novels: any one. George Eliot's novels: any one. Mrs. Gaskell's *Cranford*. Kingsley's *Westward Ho!* or *Hereward the Wake*. Reade's *The Cloister and the Hearth*. Blackmore's *Lorna Doone*. Hughes's *Tom Brown's School Days*. Stevenson's *Treasure Island*, or *Kidnapped*, or *The Master of Ballantrae*. Cooper's novels: any one. Poe's *Tales*. Haw-

thorne's *The House of the Seven Gables*, or *Twice Told Tales*, or *Mosses from an Old Manse*. A collection of short stories by various standard writers.

GROUP 4—Essays, Biography, etc.; two to be selected: The *Sir Roger de Coverley Papers*, or selections from the *Tatler* and the *Spectator* (about 200 pages). Boswell's *Life of Johnson* (about 200 pages). Franklin's *Autobiography*. Irving's *Sketch Book* (about 200 pages), or *Life of Goldsmith*. Southey's *Life of Nelson*. Selections from Lamb's *Essays of Elia* (about 100 pages). Lockhart's *Life of Scott* (about 200 pages). Thackeray's Lectures on Swift, Addison, and Steele, in *English Humorists*. Macaulay, one of the following essays: *Lord Clive*, *Warren Hastings*, *Milton*, *Addison*, *Goldsmith*, *Frederic the Great*, or *Madame d'Arblay*. Trevelyan's *Life of Macaulay* (about 200 pages). Ruskin's *Sesame and Lilies*, or selections (about 150 pages). Dana's *Two Years Before the Mast*. Lincoln: two Inaugurals, and the speeches in Independence Hall and at Gettysburg, the Last Public Address, and Letter to Horace Greeley, together with a brief memoir or estimate of Lincoln. Parkman's *The Oregon Trail*. Thoreau's *Walden*. Selected essays of Lowell (about 150 pages). Holmes's *The Autocrat of the Breakfast Table*. Stevenson's *Inland Voyage*, and *Travels with a Donkey*. Huxley's *Autobiography* and selections from *Lay Sermons*, including the addresses on *Improving Natural Knowledge*, *A Liberal Education*, and *A Piece of Chalk*. A collection of essays by Bacon, Lamb, De Quincey, Hazlitt, Emerson, and later writers. A collection of Letters by various standard writers.

GROUP 5—Poetry; two to be selected: Palgrave's *Golden Treasury* (first series), Books II and III, with special attention to Dryden, Collins, Gray, Cowper, and Burns. Palgrave's *Golden Treasury* (first series), Book IV, with special attention to Wordsworth, Keats, and Shelley (if not chosen for study). Goldsmith's *The Traveller* and *The Deserted Village*. Pope's *The Rape of the Lock*. A collection of English and Scottish Ballads, as, for example, some Robin Hood Ballads, The Battle of Otterburn, King Estmere, Young Beichan, Bewick and Grahame, Sir Patrick Spens, and selections of later ballads. Coleridge's *The Ancient Mariner*, *Christabel*, and *Kubla Khan*. Byron's *Childe Harold*, Canto III or IV, and *The Prisoner of Chillon*. Scott's *The Lady of the Lake* or *Marmion*. Macaulay's *The Lays of Ancient Rome*, *The Battle of Naseby*, *The Armada*, *Ivry*. Tennyson's *The Princess*, or *Gareth and Lynette*, *Launcelot and Elaine*, and *The Passing of Arthur*. Browning's *Cavalier Tunes*, *The Lost Leader*, *How They Brought the Good News from Ghent to Aix*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of*

the French Camp, Hervé Riel, Pheidippides, My Last Duchess, Up at a Villa—Down in the City, The Italian in England, The Patriot, "De Gustibus," The Pied Piper, Instans Tyrannus. Arnold's *Sohrab and Rustum* and *The Forsaken Merman.* Selections from American poetry, with special attention to Poe, Lowell, Longfellow, and Whittier.

(c) Study and Practice.—This part of the requirement is intended as a natural and logical continuation of the student's earlier reading, with greater stress laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions. The books provided for study are arranged in four groups, from each of which one selection is to be made.

GROUP 1—Drama; one to be selected: Shakespeare's *Julius Cæsar, Macbeth, Hamlet.*

GROUP 2—Poetry; one to be selected: Milton's *L'Allegro, Il Penseroso,* and either *Comus* or *Lycidas.* Tennyson's *The Coming of Arthur, The Holy Grail,* and *The Passing of Arthur.* The selections from Wordsworth, Keats, and Shelley in Book IV of Palgrave's *Golden Treasury* (first series).

GROUP 3—Oratory; one to be selected: Burke's *Speech on Conciliation with America.* Macaulay's *Speeches on Copyright,* and Lincoln's *Speech at Cooper Union.* Washington's *Farewell Address,* and Webster's *First Bunker Hill Oration.*

GROUP 4—Essays; one to be selected: Carlyle's *Essay on Burns,* with a selection from Burns's poems. Macaulay's *Life of Johnson.* Emerson's *Essay on Manners.*

Examination.

However accurate in subject-matter, no paper will be considered satisfactory if seriously defective in punctuation, spelling, or other essential of good usage.

The examination will be divided into two parts, one of which will be on grammar and composition and the other on literature.

In grammar and composition the candidate may be asked specific questions upon the practical essentials of these studies, such as the relation of the various parts of a sentence to one another, the construction of individual words in a sentence of reasonable difficulty, and those good usages of modern English which one should know in distinction from current errors. The main test in composition will consist of one or more essays, developing a theme through several paragraphs. The subjects will be drawn from the books read, from the candidate's other studies, and from his personal

knowledge and experience quite apart from reading. For the purpose the examiner will provide several subjects, perhaps eight or ten, from which the candidate may make his own selections. He will not be expected to write more than four hundred words an hour.

The examination in literature will include:

(*a*) General questions designed to test such knowledge and appreciation of literature as may be gained by fulfilling the requirements defined under "(a) Reading," above. The candidate will be required to submit a list of books read in preparation for the examination, certified by the principal of the school in which he was prepared; but this list will not be made the basis of detailed questions.

(*b*) A test on the books prescribed for study, which will consist of questions upon their content, form, and structure, and upon the meaning of such words, phrases, and allusions as may be necessary to an understanding of the works and an appreciation of their salient qualities of style. General questions may also be asked concerning the lives of the authors, their other works, and the periods of literary history to which they belong.

History:	Units.
(*a*) American	1
(*b*) English History	1
(*c*) Ancient History	1
(*d*) General Mediæval and Modern History	1

American history must be offered for one of the units in history, and any one of the others named for the second. Standard text-books of high-school grade should be studied.

Mathematics:	Units.
(*a*) Algebra (high-school text-book)—	
To Quadratics	1
Quadratics through Progression	½
(*b*) Plane Geometry (complete)	1

Science and Vocational Subjects:	Units.
(*a*) Botany	½ or 1
Chemistry	½ or 1
Physics	½ or 1
Physiology	½ or 1
Zoology	½ or 1
(*b*) Agriculture	½ or 1
Bookkeeping	½
Civics	½
Drawing (freehand or mechanical)	½
Manual Arts	½ or 1
Mill Practice	½
Physical Geography	½ or 1

The specified science (see page 40) must be chosen from group **a**; any other than that chosen as the specified science from group **a** or any one from group **b** may be offered as an elective subject.

In drawing the stress should be placed on accurate observation and definite and truthful representation. It is recommended that the pupils be taught to draw from the object itself. Elementary rules of perspective, light, and shade should be given, and the drawing of the simpler geometrical plane and solid figures and of simple pieces of machinery.

As the work is as yet scarcely begun in the schools of the State, no definite requirements can be indicated for high-school instruction in Manual Arts. The following branches are suggested as pointing the direction in which the work should be developed: joinery, forging, machine and sheet-metal work, molding, and pattern making.

One unit is allowed for a science when work in the text-book is supplemented with laboratory practice; only a half unit is allowed for the study of the text-book without laboratory. If full credit is asked, the applicant for admission must present a satisfactory notebook indicating the amount and the character of the laboratory work done, and certified by the teacher, the principal, or the superintendent of his school.

Foreign Languages:		Units.
French—	(*a*) Grammar and Composition	½
	(*b*) Translation (250 pages of prose)	½
German—	(*a*) Grammar and Composition	½
	(*b*) Translation (200 pages of prose)	½
Latin—	(*a*) Grammar and Composition	1
	(*b*) Cæsar (Books I-IV of the Gallic War)	1
	(*c*) Vergil (Books I-VI of the Æneid)	1
Spanish—	(*a*) Grammar and Composition	½
	(*b*) Translation (250 pages of prose)	½

The faculty of the College reserves the right to pass upon the adequacy of an applicant's preparation in any subject to fulfil the requirements of admission.

ENTRANCE EXAMINATIONS AT COUNTY-SEAT AND AT COLLEGE.

Entrance examinations will be held by the County Superintendents of Instruction in each courthouse in the State at 10 o'clock a. m. the second Thursday in July of each year. The date for 1916 is July 13. These examinations will save the expense of a trip to Raleigh in case the candidate should fail or in case there should not be room enough for him in the College. Entrance examinations will be held also at the College at 8:30 o'clock a. m. on the Wednesday preceding the opening day. The examinations begin with English at 8:30 a. m., in Room 18, Holladay Hall, followed by Mathematics at 10, and History at 2, in the same room. The date for 1916 is September 6.

ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

1. Applicants for admission to winter courses, if over eighteen years of age.

2. School teachers, holding teachers' certificates, if the holders are sufficiently familiar with Algebra and Geometry.

3. Graduates of those high schools and academies whose certificates are accepted by the Faculty of this College.

ADVANCED CREDIT.

Students who have attended colleges of approved standing will be allowed credit for work done upon the presentation of proper

certificates to the Dean, who, with the heads of the departments concerned, will determine their value.

SESSION.

The College session lasts nine months, and opens annually the first Thursday in September and closes the last Tuesday in May, with a vacation of about two weeks at Christmas.

EXPENSE.

The total average college expense of a Freshman student is $235.

The total average college expense of a Freshman student having a scholarship is $190.

These amounts include cost of board, tuition, lodging, fuel and lights, fees and deposits, books, uniform and cap, and drawing instruments. They do not include allowance for clothing, other than for uniform and cap, nor for spending money and contingencies.

Allowance for clothing, spending money, and contingencies should be kept within reasonable bounds. The allowances which parents make their sons for contingencies and spending money, it is suggested, should be kept small; for small allowances frequently take away temptation to unwise living.

DETAILED INFORMATION.

The largest payment is made in September. On entrance, a Freshman student will need $85 to meet all of his various payments for the first month. But of this amount a payment of $22.50 for tuition may be deferred, if desired, to the first of November. This will reduce the first, or entrance, payment to $62.50. This amount includes payment to the College of $45 (this may vary one or two dollars according to the course of instruction); a deposit of $5 with the dealer for uniform and cap, and $12.50 for the purchase of books and incidentals. In the case of day students, or students rooming and boarding out of College, tuition will be paid on entrance.

Board is $11 per month, payable in advance on the first day of each calendar month from September through to May. Board for less time than one month is charged for at the rate of 40 cents a day. Refunds for board will be made on the basis of these charges.

Students withdrawing from College within two weeks from date of entrance will be refunded all money paid by them to the College Bursar except charges for board and lodging during the time they are in College. In special cases the right is reserved to modify or entirely revoke this rule.

Refunds to students withdrawing later than two weeks from date of entrance will be made in proportion to the length of time they are in college. The right in special cases to modify or to revoke this rule is reserved.

EXPENSE BY MONTHS.

On entrance a Freshman student will need about $85 to meet his various expenses. Of this sum, as the table below specifies, $67.50 is paid to the College for regular College dues. About $12.50 will be needed for books and incidentals, and $5 must be deposited with the contractor when the regulation uniform is ordered. Of the amount paid to the College the tuition, $22.50, may be deferred, if necessary, to November 1st.

SEPTEMBER: Room rent, fuel and lights, $15; incidental fee, $2; medical and hospital fee, $3; lecture fee, $1; library fee, $1; furniture fee, $1; physical culture fee, $3; military equipment deposit, $5; mechanical and physical laboratory fees, $3; board for September, $11; a total of $45 to be paid to the College. Tuition for one-half session, $22.50, may be paid at this time, which will make a total of $67.50 to be paid to the College. In addition, there is required by the merchant a deposit of $5 for uniform and cap when the measure of the student is taken; and about $10 to $15 is required to buy books and drawing instruments, and for incidentals.

Fees and deposits for Agricultural, Chemical, Textile, and Engineering Freshmen vary as shown in the table of fees and deposits.

OCTOBER: Board, $11, and balance to merchant for uniform and cap, $15.

NOVEMBER: Board, $11; tuition, if it was not paid in September, $22.50.

DECEMBER: Board, $11.

JANUARY: Tuition, $22.50; lodging and fuel and lights, $15; medical and hospital fee, $3; furniture fee, $1; physical culture fee, $3; board, $11. A total of $55.50.

FEBRUARY: Board, $11.

MARCH: Board, $11.

APRIL: Board, $11.

MAY: Board, $11.

The amount of the September or entrance payment for students varies with the class, the course, and the division. This variation is caused by the additional collection of fees and deposits for laboratory work and for supplies. The amount of these fees and deposits is given in the table below, for all classes and courses.

FEES AND DEPOSITS FOR AGRICULTURAL STUDENTS.

	Senior	Junior	Sophomore	Freshman
Agronomy	Chemistry $2 Entomology 1 Bacteriology 3 6	Soils $3 Chemistry 2 Poultry 1 Pruning 1 Agronomy 1 8	Plant Propagation $1 Dairying 2 Chemical Lab. 4 Zoology 2 Plant Physiology 1 Animal Physiology 1 11	Botany $1 Chemical Lab. 2 Woodwork and Drawing 1 4
Animal Husbandry	Chemistry $2 Entomology 1 Bacteriology 3 6	Soils $3 Poultry 1 Chemistry 2 Agronomy 1 7	Same as Agronomy	Same as Agronomy
Horticulture	Entomology $1 Bacteriology 3 4	Soils $3 Chemistry 2 Pruning 1 Entomology 1 Agronomy 1 8	Same as Agronomy	Same as Agronomy
Normal	Chemistry $2 Bacteriology 3 Plant Diseases 1 Agronomy 1 Entomology 1 8	Soils $3 Poultry 1 Chemistry 2 Pruning 1 Agronomy 1 8	Same as Agronomy	Same as Agronomy
Veterinary	Anatomy $2 Materia Medica 1 Pathology 1 Chemistry 2 Zoology 2 Bacteriology 3 11	Agronomy $1 Poultry 1 Histology 1 Anatomy 2 Chemistry 2 7	Same as Agronomy	Same as Agronomy
Poultry	Chemistry $2 Poultry 1 Poultry (51) 2 5	Chemistry $2 Pruning 1 Soils 3 Poultry (51) 1 Poultry (52) 1 8	Same as Agronomy	Same as Agronomy

FEES AND DEPOSITS FOR ENGINEERING STUDENTS.

	Senior	Junior	Sophomore	Freshman
Civil Engineering	Drawing $1	Drawing $1	Drawing $1	Physical Lab.
			Physical Lab. 1	Shop and
			Chemical Lab. 3	Drawing
	1	1	5	
Mechanical Engineering	Shop and Drawing $2	E. E. Lab. $1	Physical Lab. $1	
	M. E. Lab. 1	Shop and Drawing 2.50	Chemical Lab. 3	
			Shop and Drawing 2	Same as C. E.
	3	3.50	6	
Electrical Engineering	E. E. Lab. $2	Direct Current Lab. $2		
	M. E. Lab. 1	Shop and Drawing 2	Same as M. E.	Same as C. E.
	3	4		
Chemistry	Chemistry $8	Chemistry $4	Physical Lab. $1	Physical Lab.
	Chemistry 2	Chemistry 3	Chemical Lab. 4	Chemical Lab.
	Chemistry 2		Physics 1	Botany
	12	7	6	
Textile Industry	Design $3	Design $3	Design $4	Chemical Lab.
	Dyeing 3	Dyeing 3	Chemical Lab. 4	Shop and
	Machine Shop 1		Drawing 1	Drawing
	7	6	9	
Textile Dyeing	Chemistry $8	Chemistry $4	Chemical Lab. $4	Chemical Lab.
	Dyeing 3	Chemistry 3	Drawing 1	Shop and
		Dyeing 3		Drawing
	11	10	5	

FEES AND DEPOSITS FOR SHORT COURSES.

Two-Year Course in Agriculture.

FIRST YEAR:	
Shop	$ 1.00
Physics	1.00
	2.00
SECOND YEAR:	
Dairying	2.00
Soils and Fertilizers	1.00
Entomology	1.00
Agronomy	1.00
Chemistry	1.00
Poultry	1.00
Vegetable Gardening	.50
	7.50

One-Year Course in Agriculture.

Dairying	$ 2.00
Shop	1.00
Chemistry	1.00
Soils and Fertilizers	1.00
Entomology	1.00
Agronomy	1.00
Poultry	1.00
Vegetable Gardening	.50
	8.50

Two-Year Course in Mechanic Arts.

FIRST YEAR:	
Shop and Drawing	$ 2.00
SECOND YEAR:	
Shop and Drawing	2.00

Two-Year Course in Textile Industry.

FIRST YEAR:	
Designing	$ 4.00
Drawing	1.00
	5.00
SECOND YEAR:	
Designing	3.00
Dyeing	3.00
Shop	1.00
	7.00

NOTE.—The College Bursar is forbidden by the Trustees to give credit.

All unused deposits are refunded to the student at the end of the session or upon his withdrawal from College. If he has overdrawn his deposit he is required to pay the amount of the overdraft.

If the student has a scholarship, he does not pay tuition.

Students entering after September will pay on entrance all the items enumerated under "September," less a credit in part for tuition and room rent.

WHAT A STUDENT NEEDS FOR HIS ROOM.

The College rooms are supplied with necessary furniture. Each student, however, should bring with him two pairs of blankets, two pairs of sheets, one pillow and two cases, and two bedspreads for a single bed.

SCHOLARSHIPS CARRYING FREE TUITION.

1. Regular Scholarships.—When the College was chartered the Legislature required the Trustees to admit, free of tuition, one hundred and twenty young men. The only conditions attached to these scholarships are that they shall go to young men (1) who are unable to pay for all their education, and (2) who are of excellent moral character. As far as possible these appointments are distributed among the different counties. Appointments are made by the President of the College, after inquiries as to the needs and character of applicants and after a written recommendation from a member of the Legislature from the applicant's county. Certificates of inability to pay have to be made by the applicant and his parents. Blanks are furnished for this purpose.

2. Agricultural Scholarships.—The Legislature of 1913 authorized the College Trustees to give a limited number of agricultural

scholarships to students who agree to teach for two years in an agricultural school, or to serve in an agricultural experiment station, or to farm in the State for two years after graduation. The same conditions as to financial inability and moral worth go with these scholarships as go with the regular ones.

3. Norfolk Southern Railway Scholarships.—Two scholarships, each valued at $75, are given by the Norfolk Southern Railway to deserving young men who reside in counties on the lines of this railway. These are awarded only to agricultural students.

4. Mr. R. M. Miller, of Charlotte, offers a scholarship to one student in the Textile School. This scholarship covers the tuition of the holder.

5. Finley Loan Fund.—As a memorial foundation to William Wilson Finley, President of the Southern Railway Company at the time of his death, that company has established a Finley Loan Fund for needy students of agriculture. The fund consists of $1,000. This will be lent to students who are making their way through college, and returned by them to the fund after they have finished college and gone to work. It will be administered by the Faculty of the College and all appointments will be made by the College.

SELF-HELP.

Some students who are alert and energetic frequently earn part of their expenses in College. Some of the agricultural students find work at odd hours on the farm, in the orchard, in the barn, in the dairy. Some students act as agents for laundries, for furnishing-houses, for pressing clubs. The College employs a few students for the dining-room and for other purposes. A student's ability to help himself will depend largely on his own power to find work and to hold it after he finds it. It must, however, be remembered that the duties of the classroom take most of a student's time. College duties begin at 8 a. m. and do not end until 4 p. m., and then drill comes from 4 p. m. to 5 p. m.; hence hours for remunerative work are very limited.

STUDENT LOAN FUND.

The Alumni Association of the College established in the year 1900 a small fund to be lent to needy students of talent and character. This has been augmented from various sources and now amounts to $6,435.28. The loans are made at 6 per cent, and good security is required. Sufficient time for repayment is given to enable the student to earn the money himself. The amount lent to each student is limited. The purpose is to help young men who are

willing to help themselves and who cannot find sufficient employment while in college to meet all their necessary expenses.

Contributions are solicited for this fund from students, alumni, and friends of education generally. The fund is administered by the College Bursar, under the direction of the President.

TIME OF REGISTRATION.

All students are required to register within twenty-four hours after reaching Raleigh. A failure to comply with this rule may lead the Faculty to decline to allow an applicant to register. A registration fee of $5 will be charged to students failing to register on the day appointed.

BOARD AND LODGING.

All students are required to board in the College dining hall or in approved boarding-houses near the College, and to room in the College dormitories. An abundant supply of plain, nourishing food, with as large a variety as possible, is furnished absolutely at cost. The charge at present is $11 per month, payable in advance.

Rooms in the College dormitories are supplied with electric lights, steam heat, and all necessary furniture, except sheets, blankets, pillow-cases, pillows, bedspreads, and towels, which each student must furnish for himself. The charge for lodging is by the month, and there is no reduction in case of withdrawal.

REGULATIONS FOR ASSIGNING ROOMS.

Old students are assigned rooms in April for the coming year, according to rules in previous use. These rules provide: first, that any student has the privilege of keeping the room which he has occupied during the year; second, that assignments are to be made in the order of class seniority.

Rooms will be assigned to new students when they have filed their certificates of admission and when these have been accepted by the College Entrance Committee.

Every student, in order to retain his assignment, is required to comply with the following regulations:

The student will by August 1st pay to the College Registrar a $5 deposit on his room rent, unless the room is assigned later. If the assignment is made later, the deposit is due at the time the room is assigned.

If this deposit is not paid by August 1st, the student's claim on the room is forfeited.

If the deposit is paid by August 1st, the College will hold the om or part of room until the close of Registration Day at 6 p. m. The student shall notify the College Registrar if he decides not return or not to enter, and may be remitted his deposit up to ıgust 25th. Those who fail to give notice by August 25th forfeit eir payment to the College.
No assignment is transferable.

DRILL.

In return for the Morrill Fund of the United States Government, e College is under contract to require its students to drill at least ree times each week, and an Army officer is detailed to conduct e drills. No student will be excused from drill unless the College ıysician, after examination, deems him unfit for military duty.

UNIFORM.

The College uniform must be worn by all students when they are military duty. It must be bought at the College from the regular ntractor. All new students must have new uniforms, as the pur- ase of second-hand uniforms is positively forbidden. The uni- rm—cap, blouse, and trousers—costs about $14. When the student ıs his measure taken for his uniform he is required to deposit $5 part payment, and the remainder when the contractor delivers e uniform and the same has been accepted by the Commandant. No uniform overcoat is required, but every student should bring comfortable overcoat with him.

CARE OF THE SICK.

Every effort is made to protect the health of young men in the ollege. Regular inspections of the entire institution are made ıce a year, or oftener, by the State Board of Health. Similar in- ections are made monthly by the College Physician.
Each student has a regular routine of daily life, including abun- ınt physical exercise in the shops and on the drill grounds.
In case of sickness, a student is taken immediately to the College firmary, where he receives medical attention and careful nursing. The College Physician visits the Infirmary daily at 3 o'clock p. m., ıd in cases of serious illness as frequently as may be required.
A trained nurse has charge of the Infirmary at all times. The yment of the medical fee entitles a student to all the privileges of e Infirmary; and this includes the regular visits of the College ıysician for all ordinary sickness. However, if a special nurse is

needed in case of serious contagious disease or in case of other se ous illness, parents are of course expected to pay such nurse nurses. The medical fee does not cover special surgical operatio or the attention of any medical specialist.

VACCINATION.

By direction of the Trustees, no young man will be registered u less he has been successfully vaccinated within the past two yea The College greatly prefers that all applicants for admission shou be vaccinated at home, and that a certificate of successful vaccin tion within the past two years be brought from the family physicia In case this cannot be done, the College Physician will vaccina applicants before they are registered at the College. A blank for to be filled by the home physician will be mailed on application. will save a great deal of time and trouble, therefore, to be vac nated before applying for registration. In this way applicants w avoid the inconvenience and discomfort resulting from vaccinati while at College. The size of scar resulting from a previous vac nation is not proof that revaccination is not needed.

TYPHOID INOCULATION.

Believing that students may be safeguarded from typhoid fev by inoculation against this disease, to which young people a peculiarly susceptible, the College offers this preventive free charge, and urges, but does not require, all of its new students take the treatment. Parents are requested to join the College recommending that their sons be inoculated here or to have the inoculated at home.

COURSES OF INSTRUCTION.

The College offers courses of instruction in the following subjects:

I. Agriculture.

a-f. Four-year Courses, including Agronomy, Soils, and Drainage, and Agricultural Chemistry; Animal Husbandry, Dairying, and Poultry Husbandry; Horticulture and Botany; Veterinary Science; Normal Course.

g. Two-year Course in Agriculture.

h. One-year Course in Agriculture.

i. Work Course in Agriculture.

j. Four-weeks Course in Agriculture and Dairying, beginning at the opening of college in January.

These courses are described on pages 59-116.

II. Engineering, Mechanic Arts, and Chemistry.

a. Four-year Course in Civil Engineering. Pages 118-123.

b. Four-year Course in Mechanical Engineering. Pages 124-138.

c. Two-year Course in Mechanic Arts. Pages 139-143.

d. Four-year Course in Electrical Engineering. Pages 144-151.

e. Four-year Course in Chemistry. Pages 152-163.

III. Textile Industry.

a. Four-year Textile Course. Pages 164-183.

b. Four-year Dyeing Course. Pages 173-183.

c. Two-year Textile Course. Pages 184-188.

IV. Normal Courses for the training of teachers in industrial subjects.

a. Two-year Course in Agriculture. Page 190.

b. One-year Course in Agriculture. Page 191.

c. Summer Term for Teachers. A four-weeks course in the sciences underlying modern agriculture, and in their practical application. See page 192.

V. Graduate Courses.

Extending over one or more years and leading to advanced degrees. These are intended for students who have completed the

four-year course and who desire further instruction and training in special subjects. For information regarding the graduate degrees, see page 193.

VI. Degrees.

The four-year courses offer a combination of practice and theoretical work, about half the time being devoted to lectures and recitations and the other half to work in the shops, laboratories, drawing-rooms, greenhouses, dairies, poultry yards, fields, and mills. They are intended to furnish both technical and liberal education. The degree of Bachelor of Science is conferred upon a graduate of the four-year courses in Agriculture, in Chemistry, and in Dyeing; and the degree of Bachelor of Engineering is conferred upon a graduate of the four-year Engineering course, or the four-year Textile course.

The short courses include nearly all of the practical work of the four-year courses with less theoretical instruction. They are intended for students who desire chiefly manual training. They do not lead to a degree.

I. AGRICULTURAL COURSES.

a. **Four-year Course in Agronomy.**
b. **Four-year Course in Animal Husbandry.**
c. **Four-year Course in Horticulture.**
d. **Four-year Course in General Agriculture for prospective secondary agricultural school teachers.**
e. **Four-year Course in Poultry Science.**
f. **Four-year Course in Veterinary Science.**
g. **Two-year Course in General Agriculture.**
h. **One-year Course in General Agriculture.**
i. **Work Course in General Agriculture.**
j. **Four-weeks Winter Course for Farmers.**

Aim and Scope.—The aim of the Agricultural Courses is to train young men in both the science and the practice of their vocation. It is believed that every young man preparing to farm needs a double education—one that is practical, to fit him for his profession; another that is cultural, to fit him to live.

In order to meet the necessities of all young men who desire instruction in Agriculture, the College offers ten distinct courses.

a, b, c, d, e, and f. The Four-year Courses are designed to give a thoroughly practical as well as scientific training in the several divisions of Agriculture. The strictly technical portion constitutes about one-third of the work. Of the remaining two-thirds of the course, more than half is prescribed in the sciences. This is done for the training and information they give, and as preparation for the technical work of the course. Because of this, and because the subject-matter and the methods of the technical portion lie so fully within the domain of science, these courses are essentially scientific rather than literary. Yet the College is mindful of the fundamental character of such studies as Mathematics, English Literature, Physics, etc., and they are not neglected in this course. **Full description of the Four-year Courses begins on page 61.**

g. The Two-year Course in Agriculture is offered to meet the necessities of young men who wish to prepare themselves in the art rather than in the science and art of agriculture. This course does not lead to graduation, but is designed to help young men better fit themselves by a year or two of practical work for their chosen sphere of industrial activity in the garden or orchard, on the farm, and in the production of animals and animal products. **The Two-year Course is described on page 93.**

h. The One-year Course in Agriculture is designed to meet t needs of young men who are ambitious to excel in the vocation farming, and who feel the need of better preparation for their lif work. The time which can be devoted to study is often limite hence the topics in this course have been arranged in such a ma ner that the student is enabled to get the greatest amount of pra tical information in the time at his disposal.

Education and training pay on the farm as elsewhere. The you man who prepares himself for his life's work will make more rap strides and will gain success much more quickly than the one wl does not.

The College has numerous calls for young men to manage farn and estates. It is able to fill only a limited number of the Young men who have any talent along this line can fit themselv for this work by taking this course. **The One-year Course is d scribed on page 99.**

i. The Work Course in Agriculture.—Practically the same wo as that offered in the One-year Course in Agriculture, but extend over two years. Work Course students devote only half of the time to classes, being employed on the College farm for the oth half. In this way they are able to earn their living while in scho **The Work Course in Agriculture is described on page 102.**

j. The Four-weeks Winter Course in Agriculture is established meet the needs of those who can spend only the winter at the Co lege. The important and practical subjects of Agriculture a Horticulture and Stock-raising receive principal attention. T **Four-weeks Course is described on page 107.**

Methods of Instruction.—Instruction is by laboratory and fie work, supplemented by text-books, lectures, and reference reading which are assigned from standard volumes and periodicals.

The equipment for the technical work of the Agricultural cour is rapidly increasing. The Dairy Department is equipped with modern creamery for pasteurizing, separating, creaming, and chur ing, and for investigation in dairy bacteriology.

The department makes free use of the fields, orchards, and ga dens, in which the Agricultural Experiment Station conducts expe ments in methods of culture, in effects of several practices on yie and on fertility, and in varieties of fruit, of vegetables, and of fo age crops. The methods employed and the results obtained a freely used for instruction.

DEPARTMENT OF AGRICULTURE.

(a). Four-year Course in Agriculture.

This course leads to the degree of Bachelor of Science.

Freshman Year.

Courses and Numbers.	Periods a Week.	
	1st Term.	2d Term.
otany, 30	3	3
hemistry, 90	2	2
hemistry, 91	1	1
rawing, 152	2	0
rill, 153	3	3
nglish, 120, 121	3	3
athematics, 110, 111	5	5
oodworking, 150	0	2
ology, 80	3	3
Totals	22	22

Sophomore Year.

gronomy, Farm Equipment, 2	2	0
nimal Husbandry, Dairying, 41	0	3
otany, 31	3	2
hemistry, 92	3	3
rill, 153	3	3
nglish, 122, 123	3	3
cology, 97	0	2
orticulture, Plant Propagation, 20	3	0
ysics, 100	3	3
ysiology, Comparative, 60	3	2
actics, 154	1	1
ology, 81	0	2
Totals	24	24

Junior Year.

Courses and Numbers.	Divisions.					
	Agron.	A. H.	Hort.	Norm.	Poultry	Vet.
Agronomy, 3	3-3	3-3	3-3	3-3	3-3	3-3
Anatomy, 64						3-3
Animal Husbandry, Breeds, 42	3-0	3-0		3-0		3-0
Animal Husbandry, Feeds, 43	0-3	0-3	0-3	0-3	0-3	0-3
Chemistry, 93, 94	3-3	3-3	3-3	3-3	3-3	3-3
Drill, 153	3-3	3-3	3-3	3-3	3-3	3-3
English, 124	3-3	3-3	3-3	3-3	3-3	3-3
Entomology, 84			3-0			
Histology, 63						3-3
Horticulture, Practical Pomology, 21	3-0		3-0	3-0	3-0	
Horticulture, Pruning and Orchard Protection, 22.	0-3		0-3	0-3		
Horticulture, Vegetable Gardening, 23	0-3	0-3	0-3	0-3	0-3	
Materia Medica, 65						0-3
Poultry, 51	3-0	3-0	3-0	3-0	3-0	3-0
Poultry, 53, 52					3-3	
Soils, 10	3-3	3-3	3-3	3-3	3-3	
Veterinary Medicine, 61, a and b		3-3				
Totals	24	24	24	24	24	24

Senior Year—Required Studies.

Courses and Numbers.	Divisions.					
	Agron.	A. H.	Hort.	Norm.	Poultry	Vet.
Agronomy, 5	3-3	0-3	0-3	3-3	.....	0-3
Agronomy, 6	3-3	.....	.....	.....	.....	.....
Agronomy, 7	3-0	3-0	.....	3-0	3-0	.....
Animal Husbandry, Breeding, 44	3-0	3-0	3-0	3-0	3-0	3-0
Animal Husbandry, 45	.....	0-3	.....	.....	.....	.....
Animal Husbandry, 46, 47	.....	3-3	.....	.....	0-3	0-3
Animal Husbandry, 48, 49	.....	3-3	.....	.....	3-3	.....
Anatomy, 66	.....	.....	.....	.....	.....	3-3
Botany, Bacteriology, 33	.....	0-3	0-3	0-3	0-3	0-3
Botany, Plant Diseases, 32	.....	.....	3-0	3-0	.....	.....
Chemistry, 95	3-3	3-3	.....	3-3	3-3	3-0
Diagnosis, 71	.....	.....	.....	.....	.....	0-3
English, 125	.....	3-0	.....	.....	3-0	.....
Electives[1]	3-3	3-0	3-3	.....	3-3	3-3
Economics, 130, 131	3-3	3-3	3-3	3-3	3-3	.....
Elementary Psychology, 160	.....	.....	.....	3-3	.....	.....
Horticulture, Greenhouse Management, 24.	.....	.....	3-0	.....	.....	.....
Horticulture, Systematic Pomology, 25	.....	.....	3-0	.....	.....	.....
Horticulture, Plant Breeding, 26	0-3	.....	0-3	0-3	.....	.....
Horticulture, Landscape Gardening, 27	.....	.....	3-0	.....	.....	.....
Horticulture, Elective, 28	.....	.....	0-3	.....	.....	.....
Poultry, 55, 54	.....	.....	.....	.....	3-3	.....
Poultry, 56	.....	.....	.....	.....	0-3	.....
Poultry, 57	.....	.....	.....	.....	0-3	.....
Physiology, 67	.....	.....	.....	.....	.....	3-3
Pathology, 70	.....	.....	.....	.....	.....	3-3
Pharmacy, 69	.....	.....	.....	.....	.....	3-0
Soils, Fertilizers, 11	0-3	.....	0-3	0-3	.....	.....
Soils, Drainage, 12	3-0	.....	3-0	3-0	.....	.....
Zoology, 82 (Embryology)	.....	.....	.....	.....	.....	3-0
Zoology, Entomology, 85	0-3	.....	.....	0-3	.....	.....
Zoology, Entomology, 86	.....	0-3	.....	.....	.....	.....
Zoology, Entomology, 87	.....	.....	0-3	.....	.....	.....
Totals	24	24	24	24	24	24

[1]To be chosen from following table of Senior Electives.

Senior Electives.

Courses and Numbers.	Divisions.					
	Agron.	A. H.	Hort.	Norm.	Poultry	Vet.
Agronomy, Farm Management, 7			3-0		3-0	
Animal Husbandry, 40, a, b, c, d, e, f		3-3				
Animal Husbandry, 45, 46, 47, and 40b					0-3	
Botany, Plant Diseases, 32	3-0					
Botany, Bacteriology, 33	0-3					
Chemistry, Organic, 95			3-3			0-3
Drill	3-3	3-3	3-3	3-3	3-3	3-3
Economics, 132, 133	3-3	3-3	3-3	3-3	3-3	3-3
English, 125, 126	3-3	0-3	3-3	3-3	0-3	3-3
Horticulture, Landscape Gardening, 27				3-0		
Modern Languages, 141, 144	3-3	3-3	3-3	3-3	3-3	3-3
Physiology, Experimental, 68	3-3		3-3		3-3	
Poultry, 51 or 56		3-3	0-3	0-3		
Soils, Advanced, 13	3-3			3-3		
Veterinary Medicine, 62 a[1], b[1]		3-3		3-3	3-3	
Zoology, 82					3-0	
Zoology, 83				3-3		

[1]May be taken either term.

AGRICULTURAL EQUIPMENT.

In addition to Patterson Hall and the Animal Husbandry Building, with their classrooms, laboratories, dairy, stock-judging room and offices, the College possesses the following equipment for instruction in Agriculture:

The farm includes four hundred and eighty-five acres, with two hundred and sixty acres under cultivation; a two-story sixteen-stall horse and storage barn; a fifty-stall dairy barn; a large combination horse, implement, and storage barn; a large implement, fertilizer and grain barn, and a calf barn; silos with capacity for four hundred tons of silage; a No. 17 Ohio feed and ensilage cutter operated by an electric motor, and implements and machinery necessary for up-to-date farming.

The livestock consists of the necessary Percheron mares and mules, a Percheron stallion, a herd of dairy cattle, and pure-bred swine. Breeding stock is sold as a part of the farm products.

The poultry plant has a number of breeding pens with necessary yards, the houses being of two different types well suited to poultry-keeping in North Carolina; an incubator room with three makes of incubators; a brooder house partially heated by hot water, and several makes of indoor brooders. Ten or fifteen varieties of poultry are kept, and eggs and breeding fowls are sold to the public.

The horticultural equipment consists of about thirty acres in tree fruit, nuts, vineyard, berries, and vegetables, in appropriate assortment of classes and varieties for demonstration and instruction. These afford means for work in seed selection, bud studies, propagation, budding, grafting, transplanting, pruning, spraying, and variety study.

The dairy equipment is complete and thoroughly modern. The laboratory occupies about four thousand feet of floor space in Patterson Hall, and is equipped for instruction in farm dairying, retailing milk, creamery practice, cheese and butter making, milk testing and pasteurizing.

The North Carolina Experiment Station is a department of the College, and its close association with the School of Agriculture gives exceptional opportunities to the Agricultural students for instruction and observation, covering experiments and research in agronomy, chemistry, horticulture, vegetable pathology, plant diseases, bacteriology, dairy and animal husbandry, poultry husbandry, veterinary science, and entomology.

AGRONOMY.

Equipment.

The classrooms, laboratory, offices, storage, and supply rooms are in Patterson Hall. The Department has the necessary accessories for present-day instruction in Agronomy, and additions are made as needed. The Department operates the College farm of about one hundred and forty acres. A large horse barn, with corn bins, harness rooms, and hay-mows, accommodates a dozen mules, and Percheron mares and colts. Another large three-story barn is for seeds, supplies, tools, implements and machinery for operating the farm and for giving practical farm work and instruction to students. A portion of the farm is set aside for the exclusive use of students in securing practical farm experience with very nearly all of the farm crops of the State. This practice work includes soil preparation, mixing and applying fertilizers, cultivating and harvesting, crop

breeding, and laboratory study of the crops grown by the students. The field, laboratory, and class instruction are the three parts of the student's work which together make up the course of instruction in Agronomy.

Subjects of Instruction.

2. Farm Equipment.—Selecting, laying out, and equipping farms; locating, planning, and constructing farm buildings; fences, gates, bridges, roads; tools, implements and machinery; miscellaneous appliances; farm power, water supply, and sanitation. Two periods, first term. Required of Sophomores. Professor NEWMAN.

3. Agronomy: Grains, Grasses, and Legumes.—The history, production, uses, and improvement of these crops; a study of varieties and their adaptation; seeding, culture, and harvest. A portion of the College farm is set aside for the growing of various farm crops by students, that they may become familiar with these crops and the methods of their culture by working with them in the classroom, in the laboratory, and in the field. Each student keeps a complete record of all operations, including date and manner of seeding, amount of seed, preparation of the soil, fertilization, cultivation, seed selection, and all other operations involved in crop production and uses. Fee, $1. Required of Juniors. Mr. HODSON.

5. Agronomy: Farm Crops.—A continuation of Agronomy, course 3, including, in addition, cotton, tobacco, sweet potatoes, peanuts, hay, forage, pastures, and silage production. The first term is devoted to cotton and tobacco, the second term to crops associated with animal production. Three periods through the year. Required in Agronomy Division. The second term is required in all other divisions except Poultry. Professor NEWMAN.

6. Agronomy: Crop Production and Experiments.—A continuation of the class, laboratory, and field work in Agronomy 3. The fall term is devoted to a detailed study of the crops harvested in the fall on the College and Experiment Station farms, the work having begun in the spring term of the Junior year. The spring term is partly devoted to projects carried individually by members of the class. Three periods through the year. Prerequisite, Agronomy 3. Required of Seniors in Agronomy. Professor NEWMAN and Mr. HODSON.

7. Farm Management.—Types of farming and their relation to soil, climate, labor, transportation, population, capital, and land values; operating expenses, systems of land tenure, farm organization, size of farms; location and arrangement of buildings, roadways, fences, water supply, orchard, garden, etc.; factors governing kind

and amount of equipment; financial accounts; farm records; relation of animal and plant production to maintenance of fertility; standard of living; schools and churches. Three periods, first term. Required of Seniors in Agronomy, Animal Husbandry, Normal, and Poultry divisions. Professor NEWMAN.

8. Agronomy.—These courses are arranged for students taking graduate work in Agronomy. Two periods per week may be taken in each of the following courses: (*a*) Corn, (*b*) Small Grain, (*c*) Cotton, (*d*) Tobacco, (*e*) Grasses, including Forage Crops, Meadows and Pastures, (*f*) Legumes, (*g*) Rotation, Green Manuring, and Cover Crops, (*h*) Crop Breeding, (*i*) Field Crop Experiments, (*k*) Farm Management. Two periods. Professor NEWMAN and Mr. HODSON.

SOILS.

Equipment.

The Soils Department has a large new laboratory in Patterson Hall furnished with solid oak desks and lockers so arranged as to accommodate a large number of students in general soils work and to allow individual locker space with plenty of working room for each student. These desks and lockers, with other tables and soil chests, were designed and made to order for this laboratory, and hence are arranged to give the greatest convenience and the most complete use of the room that is possible.

The apparatus is all of the latest and most approved models, giving greater utility and accuracy, combined with simplicity, than would be possible with any other.

In addition to the laboratory facilities, the department makes use of the College farm for its practical work in drainage, terracing, fertilization, cultivation, and study of soil types.

Subjects of Instruction.

10. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the

United States, and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of all Juniors, except Veterinary Division. Deposit, $3. Prerequisites, Chemistry 90 and 91, and Physics 100. Professor SHERWIN and Mr. JOSLYN.

11. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability, and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers as shown by their productive capacity. Three periods, second term. Required of Seniors in Agronomy, Horticultural, and Normal divisions. Prerequisite, Soils 10. Professor SHERWIN.

12. Farm Drainage.—This includes both principles and practice of drainage. The student becomes familiar with the use of various drainage instruments and implements, as the course involves considerable field work in laying out systems of under-drains. Different methods of leveling and determining grade are discussed and practiced.

Determination of size of tile needed, depth and method of laying, influence of depth of tile and distance apart of drains on withdrawal of water from the soil, and all of these as influenced by texture and character of the soil, are considered. Drainage by means of open ditches and surface drainage by means of terraces will also be given attention. Three periods a week, first term. Required of Seniors in Agronomy, Horticultural and Normal divisions. Prerequisite, Soils 10. Professor SHERWIN and MR. JOSLYN.

13. Advanced Soils.—In this course the student will be guided in the study of any line of Soils work he may choose, along either practical or scientific lines. Laboratory and field work will be given. Considerable reference will be made to Experiment Station literature with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. This course will be of special help to men who are to engage in Farm-Life School work and Demonstration work, as well as to those primarily interested in Soils. Three periods a week throughout the year. Elective for Seniors. Prerequisite, Soils 10. Professor SHERWIN.

HORTICULTURE.

Equipment.

The Department of Horticulture is provided with facilities for instruction which are singularly efficient in many respects, and additions which are now being made, together with others which are expected in the near future, will equip it with unexcelled means of teaching horticulture in all its branches. At present the offices and classrooms are located in Patterson Hall. New laboratory space has been provided by the erection of a forty-one foot section of a brick and slate structure known as the Service Building, and one attached iron-frame greenhouse covering a space thirty by one hundred feet. The Service Building, which is twenty-five feet wide, will eventually be lengthened to seventy feet, and to it will be attached another greenhouse of the same size as the one just built. The Department is also charged with the management of about twenty-five acres of land devoted to fruits and vegetables of all kinds, and of the College campus, covering about fifty-five acres, which is in the process of development in accordance with artistic and scientific principles of landscape design.

The laboratory space is constantly in use as a workroom for classes in all subjects, and is well supplied with tools and necessary pieces of apparatus. The greenhouse, hotbeds, and cold-frames provide room and facilities not only for growing early vegetables and flowering plants, but also for the forcing of both vegetables and flowers under glass. Here the student is allotted a definite space and is required to put into practice the knowledge gained in the classroom by growing the crops there treated. Practice work is an essential adjunct of every course. Student work under competent supervision is employed in all parts of the grounds.

The Horticultural Grounds, which contain about twenty-five acres, provide exceptional facilities for additional training in vegetable gardening, and for instruction in pomology and plant breeding. Here are located the "Student" vegetable gardens, which the students are required to plan, plant, and manage. Here, also, are to be found an orchard each of apples, pears, pecans, and figs; a vineyard each of "bunch" and muscadine grapes; and smaller plantings of plums, persimmons, quinces, cherries, raspberries, blackberries, dewberries, strawberries. The remaining and intermediate spaces are used for growing vegetables on a larger scale; for the maintenance of a nursery for fruit and ornamental plants; and for

ornamental planting about the residence situated near the middle of the grounds. The grounds as a whole are designed to serve as a model of a small fruit farm economically and tastefully arranged.

Subjects of Instruction.

20. Plant Propagation.—A course in the multiplication of plants. Seedage, separation and division, cuttage, layerage, and graftage are considered in turn. The most commonly used methods of propagating vegetables, fruit and ornamental plants are emphasized. Three periods, first term; recitation, two hours; practice, two hours per week. Fee, $1. Required of Sophomores. Mr. HAYDEN.

21. Practical Pomology.—A general course in fruit growing. Among the subjects considered are the choice of locations, the selection of sites and soils; the choice of varieties; the preparation of the land; the planning, planting, fertilization, and management of orchards; and the harvesting, storing and marketing of fruits. Practice consists in the inspection and examination of sites and soils, the making of orchard plans; laying out orchards; handling and planting trees; and the exercise of modern methods of grading, packing, and marketing fruits. Three periods, first term; recitation two hours, practice two hours per week. Required of Juniors in Horticultural, Normal, Poultry, and Agronomy divisions. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

22. Pruning and Orchard Protection.—A course in the training of fruit plants and their protection from insect pests and fungous diseases. Treatment of special diseases and methods of protection from frost are also considered. A continuation of Practical Pomology. Three periods, second term; recitation two hours, practice two hours per week. Fee, $1. Required of Juniors in Horticultural, Normal, and Agronomy divisions. Prerequisite, Practical Pomology 21. Professor PILLSBURY.

23. Vegetable Gardening.—A course dealing with the principles of vegetable growing and the methods employed in the home, truck, and market gardening areas. Special attention is given to the home garden, and the trucking industry in North Carolina. Consideration is given to sites, soils, manures and fertilizers, seed sowing, transplanting, and the culture, harvesting, storing, and marketing of all important vegetables. Three periods, second term; recitation two hours, practice two hours per week. Fee, 50 cents. Required of Juniors. Prerequisite, Plant Propagation 20. Mr. HAYDEN.

24. Greenhouse Management.—A course which treats of the principles and practice of growing plants under glass. It includes the forcing of both vegetable and flowering plants. A given area is assigned to each student and he is required to plan, plant, and manage it to a successful conclusion. Three periods, first term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Vegetable Gardening 23. Mr. HAYDEN.

25. Systematic Pomology.—A course which combines both a study of the origin and evolution of our native fruits, and practice in description, identification, classification, and judging of varieties. Three periods, first term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Practical Pomology 21. Professor PILLSBURY.

26. Plant Breeding.—A course in the study of the principles of plant breeding, and practice of the most approved methods of pollination, crossing, and selection for the origination and improvement of varieties of plants. Mendelism and biometrical measurements constitute an important part of the course. Three periods, second term; recitation two hours, practice two hours per week. Required of Juniors in Horticultural, Normal, and Agronomy divisions. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

27. Landscape Gardening.—A course in the study of the principles of the art of design, and their application to the design of landscapes. The principal styles of composition are considered and compared as to history, development, and adaptation. Practice consists of a study of landscape materials, in mapping, designing plans and specifications, and in the execution of important parts of the practical work of improving grounds. Three periods, first term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

28. Horticulture, Elective.—A course designed to give the student an opportunity to elect and pursue the study of some special line of horticultural investigation. Three periods, second term; hours to be arranged. Open to Seniors in Horticulture only. Professor PILLSBURY.

BOTANY.

Equipment.

Three commodious laboratories and a large recitation and lecture room are used for Botanical instruction. There are also offices for the teaching staff, a storeroom, a dark room, an incubator room, a

greenhouse, and a research room. All rooms are provided with electricity, gas, and hot and cold water; and the bacteriological laboratory is, in addition, provided with steam under pressure for use in sterilization. The laboratories are supplied with wall cases, shelves, herbarium cases, sterilizers, incubators, microtomes, glassware, and other materials and utensils needed in the prosecution of the work. The incubator room is fireproof, and is provided with a Weisnegg regulator capable of keeping the temperature of the room practically invariable. The excellent herbarium has been mounted, and is now accessible for class use. The most important plant diseases are represented by herbarium and alcoholic specimens. The library contains the more important botanical books for reference and receives current journals and bulletins dealing with these subjects.

Subjects of Instruction.

30. General Botany.—This course is planned to give a general knowledge of the elementary facts and fundamental principles of botany. It aims to supply the foundation upon which subsequent courses in this division are built, as well as the basic facts upon which rest certain phases of applied botany, such as horticulture and agronomy. The first term will be devoted to the general morphology of the seed plants. Attention will be given to the anatomical features of seeds, flowers, leaves, fruits, stems, roots, cells, tissues, and tissue systems, and to the correlation of anatomical structures with their physiological functions. The second term will be devoted to the general morphology of algæ, fungi, mosses, and ferns, using selected representatives as types in both the lecture and laboratory work. Special emphasis will be laid upon nutrition, reproduction, life history, and evolution of sex of those forms which are of both scientific and economic importance. Fee, $1. Three periods throughout the year. Required of Freshmen. Professor Wolf, Mr. Cooper, Mr. Lehman.

31. Plant Physiology and Systematic Botany.—This course deals with the physical and chemical phenomena in plant activities. Among the subjects covered will be osmosis, with reference to permeability and the protoplasmic membrane, absorption of water, the water content of soil in relation to plant growth, removal of water from soil by plants, mineral nutrients of the soil in relation to growth processes, mineral requirements of plants, acid and alkali soils, causes and methods of dealing with these conditions, soil infertility, with a discussion of the theories of depletion, accumulation of toxins, and occurrence of microflora, transpiration, move-

nent of water in plants, photosynthesis, including the elaboration, ranslocation and storage of carbohydrates, fats, and proteins, en- ymic activity, respiration, fermentation, and a biological explana- ion of variation and heredity. A portion of the spring term will be iven over to a study of the classification of plants in order to aid tudents in identifying the more common forms. Fee, $1. Three eriods, first term; two periods, second term. Required of Sopho- nores. Professor WOLF and Mr. LEHMAN.

32. Plant Diseases.—Consideration will be given to those diseases f farm, garden, and truck crops of parasitic and nonparasitic origin vhich are of greatest economic importance. The lectures will con- ist of a review and discussion of the more important publications lealing with the symptoms, life histories, and methods of control f plant diseases. Some attention will be given to the morphology nd methods of identification of fungi, emphasizing types of the rders concerned in the production of diseases. The laboratory work is designed to acquaint the student with field and laboratory nethods of diagnosis of plant diseases, with laboratory technique nvolving the isolation of causal organisms and the making of inocu- ations, and with the preparation of fungicides and disinfectants. Each student will be required to collect and diagnose a consider- able number of pathogenic fungi. Fee, 50 cents. Three periods, irst term. Open only to students who have completed courses 30 nd 31. Professor WOLF, Mr. COOPER.

33. Agricultural Bacteriology.—The subject-matter of this course ncludes an introduction to the principles of bacteriology, and is lesigned to serve as a basis for students contemplating specializa- ion in applied phases of the subject, such as bacteria in relation to plant diseases, to human diseases, and to the diseases of domestic animals; soil bacteriology; dairy bacteriology; sanitation with ref- erence to sewage disposal and water supplies; and the consideration of bacterially produced processes in the industries. The student becomes familiar through laboratory practice with methods em- ployed in the culture and study of bacteria. Fee, $3. Three periods, second term. Open to all students who have completed courses 30 and 31. Professor WOLF, Mr. COOPER.

34. Bacteriology (Advanced).—Those who desire to specialize in any of the fields of bacteriology may elect this course. It is designed that the course be made to fit the needs of those students electing it. Three periods. Credit for either or both terms. Prerequisite, Botany 33. Professor WOLF, Mr. COOPER.

35. Mycology.—This course concerns itself with the classificatory characters of fungi. The lectures will deal with the phylogeny, mor-

phology, and development of representative genera of fungi. The laboratory work is designed to acquaint the student with these fungi, with keys, monographs, and other publications, whether written in English or in foreign languages. Open only to graduate students after consultation with the head of this department. Professor WOLF.

36. Dairy Bacteriology.—A lecture, text-book and laboratory course covering the more important facts in the relation of bacteria to dairying. The laboratory course consists in demonstrating and supplementing the lecture course. Three periods, first term. Required of Seniors in Animal Husbandry and Veterinary divisions. Prerequisite, Botany 33. Professor FULTON and Mr. COOPER.

ANIMAL HUSBANDRY AND DAIRYING.

The Animal Husbandry and Dairy Division occupies the Animal Husbandry Building, which was completed during the summer of 1912, and part of the Main Agricultural Building, Patterson Hall. Some of the offices, with classrooms, a record room, and a stock-judging pavilion, are in the Animal Husbandry Building. The other offices, the dairy laboratory, and the creamery, are in Patterson Hall.

The livestock equipment has been added to materially during the last year because the Station and College herds and flocks have been brought under one management. The instructors and students now have an opportunity to judge and inspect the herds, studs, and flocks which are used in the investigational work on the Station. The dairy herd consists of seventy-five animals, of which about forty are cows in milk. Three leading dairy breeds are represented, consisting of twelve high-grade Holstein-Friesian cows and a registered bull, two pure-bred Ayrshire cows, twenty pure-bred Jersey cows and a bull. The flock of sheep consists of about seventy head. The flock is made up of representative Shropshires, Rambouillets, Barbados, and grades. The leading breeds of hogs are also represented on the College and Station farms. The Division owns a sufficient number of Duroc-Jerseys, Chester Whites, and Berkshires to give the students an opportunity to study breed characteristics. At the present time the stud consists of one pure-bred Percheron stallion, two high-grade Percheron mares, and about twelve grade Percheron mares owned by the Agronomy Division.

The dairy laboratory occupies the basement of the west wing of Patterson Hall. The main room of the dairy laboratory is 36 by 57 feet and is fitted with equipment suited to give up-to-date instruction in farm dairying. The equipment for the farm dairying consists, in the main, of De Laval, Sharples, Empire, International, United

States, and Simplex hand separators. Swing and barrel churns will soon be added. The laboratory is well equipped with Babcock testers, sterilizers, and other machinery for teaching the students farm dairying.

Two rooms adjoining the dairy laboratory have recently been equipped with modern creamery machinery, such as a 400-gallon churn, a 300-gallon combined ripener and pasteurizer, a refrigerator, a hydraulic butter cutter, and a Babcock tester. The creamery is maintained as a commercial enterprise, securing cream from farmers who live within shipping distance of Raleigh. The creamery is used in the regular class work, being of very great value to dairy students.

A fourth room in the basement of Patterson Hall is now fully equipped for instructional work in cheese and cheese manufacturing. This room is equipped with two vats, two different types of presses, a special curing refrigerator, and other small machinery.

Subjects of Instruction.

40. (a) Farm and Creamery Butter-Making and Creamery Management.—This is a text-book and lecture course covering the ripening of cream, the preparation and use of starters, churning and handling butter under farm and creamery conditions. Special attention will be given to creamery management and the coöperative creamery. In the laboratory practical work is given in sampling, weighing, and testing cream, scoring and grading cream, preparing starters, pasteurizing cream for butter-making, operating hand and power churns, and working and packing butter. Scoring and grading butter will also receive attention. First term, three periods. Elective for Senior Animal Industry students. Mr. Reed.

40. (b) Farm Meats and Live-stock Farm Management.—The first half of the term is devoted to questions relative to farm butchering, curing, and care of meats. A smokehouse is available, so that the studies can be made practical. The second half of the term is devoted to a study of successful methods of operating farms devoted chiefly to livestock production. A study is made of the best systems applied to North Carolina conditions. Second term, three periods. Elective for Senior Animal Industry students. Mr. Curtis.

40. (c) Cheese-Making.—In this course the subject of cheese-making in general is covered, proper attention being given to the composition and characteristics of common American and European cheese. The students are given practice in making American, Cheddar, Gouda, and some forms of soft cheese. Second term, three hours. Elective for Animal Industry Seniors. Mr. Reed.

40. (d) Dairy Bacteriology.—See Botany.

40. (e) Advanced Stock Judging.—In this course consideration given to animal conformation, quality, and condition with referen to market and show-yard requirements; to the selection of horse beef cattle, dairy cattle, sheep, and swine for the feed lot, the marke and for exhibition, and to judging at live-stock shows. First ter three periods. Elective for Senior Animal Industry students. M Gray and other members of the Division.

40. (f) Pedigree Livestock Production.—This course consists a history of breeds and prominent families of livestock, pedigre of prominent individuals, and the fundamentals of management pure-bred herds, with emphasis placed on production and marketin The course will consist of text-book readings, reference reading lectures, quizzes, and examinations. First term, three periods. Elec ive for Senior Animal Industry students. Mr. Curtis and Mr. Drai

41. Elements of Dairying.—This course consists of the discussio of the fundamental principles of dairying. Lectures are given o the secretion and composition of milk, the testing of milk and crea for butter fat, the care of milk and cream, the construction, oper tion, and care of the cream separator. Butter-making and chees making will be discussed briefly. In the laboratory practical wor is given in the testing of milk and cream, in the operation of crea separators, and in farm butter-making. Second term, three period Required of Sophomores. Laboratory fee, $2. Mr. Drain.

42. Breeds of Livestock and Fundamentals of Livestock Judg ing.—In this course the student will be made familiar with the name and location of the external parts of the various kinds of livestoc the use of the score card, comparative judging as a method, breed and breed identification, and types of farm animals. First tern three periods. Required of all Juniors. Mr. Drain.

43. Principles of Feeding.—This course consists of lectures, recita tions, and quizzes on the principles of feeding, including functio of food, physiology of digestion, and feeding for different purpose When possible, practice will be given in compounding rations an mixing feeds. Second term, three periods. Required of Junior Professor Gray.

44. Principles of Breeding.—This course consists of lectures an recitations on heredity, variation, correlation, and selection as ap plied to stock breeding. Inbreeding, cross-breeding, and gradin will be studied and discussed. First term, three periods. Require of Seniors. Professor Gray.

45. The Production of Beef Cattle.—This course consists of prac tical methods of handling the beef cattle herd, emphasizing produc tion, maintenance, finishing, and marketing. Pastures will be give

rominent consideration in the discussions. In considering the sub-ect the breeder, feeder, and butcher or consumer will be given close onsideration. All work will be based on the breeds of beef cattle dapted to Southern conditions. Work will consist of lectures, judg-ng breed and market types, assigned readings, quizzes, and exami-ations. First term, three periods. This course is optional with ourse 49 for Seniors. Mr. CURTIS.

46. Sheep Production.—This course consists of practical methods f handling the flock, breeding, feeding, maintenance, housing, and hepherding. Special emphasis is placed on practical methods of ombating sheep parasites, and on the production of early market ambs. Rotations for grazing ewes and lambs are emphasized. Close onsideration is given to the breeder, feeder, and consumer. Work onsists of lectures, reference readings, quizzes, and examinations. econd term, three periods. Required of Animal Industry Seniors. Ir. CURTIS.

47. Horse and Mule Production.—This course consists of practical ethods of producing, feeding, and handling horses and mules, and he care and management of stallions, mares, foals, and work ani-nals. The breeds are discussed according to their importance in he South. The breeding, production, maintenance, feeding of work orses, and finishing of horses for market are thoroughly discussed. Vork consists of lectures, text-book readings, assigned readings, uizzes, and examinations. Second term, three periods. Required f Animal Industry Seniors. Mr. DRAIN.

48. The Production of Swine.—This course deals with the practical uestions of raising, feeding, marketing, and sheltering swine, pecial emphasis being given to the use of suitable grazing crops. f possible, some time will be devoted to discussion of breeds, types, haracteristics, and adaptability. First term, three periods. Re-uired of Animal Industry Seniors. Professor GRAY and Mr. DRAIN.

49. Dairy Cattle and Milk Production.—In this course careful at-ention is given to a study and discussion of the feeding and care f dairy cattle and dairy calves, and to practical problems of dairy anagement. The last part of the course consists in drawing plans f dairy barns, milk houses, and refrigerators, and providing for heir equipment. Systems of dairying, as suited to different condi-ons, are also considered. The laboratory work consists in com-uting rations for dairy cattle and dairy calves, and in practice in airy management in connection with the College herd. Second term, hree periods. Optional with course 45 for Animal Industry Seniors. Ir. REED.

Courses for Graduates.

Students entering graduate work in Animal Industry should ha a thorough training in the fundamental principles of the subje The following graduate courses are offered for the year 1916-191

Animal Nutrition.—In this course there will be a study of rec scientific publications on the chemistry and physiology of the nut tion of animals and the chemical and physiological changes a processes involved in the activities of animal life. The student w be expected to follow out courses in assigned reading, hold conf ences with the instructor, and submit regular reports on the progr of his studies.

Investigational Work.—The Animal Industry Division has ma investigational projects under way. The graduate student will expected to select one of the subjects below and devote half of l time to assisting in carrying the investigation forward: (*a*) Eff of various feeds upon the bodies of swine; (*b*) The removal of oni flavors from milk and butter; (*c*) Effect of high and low rations cotton-seed meal on the finishing quality, economy of feeding, a health of beef cattle; (*d*) Effect of light and heavy maintenan rations on grazing qualities of steers the following summer; (Cotton-seed meal as a feed for swine; (*f*) Effect of high and l feeding of lambs in preventing or retarding effect of sheep pa sites; (*g*) Effect of cotton-seed meal, when fed under varying c ditions, upon the health and generative qualities of calves a heifers; (*h*) The effects of various rations upon egg production; (The effects of various rations upon body development of poultr (*j*) The methods of feeding, handling, and control of chick mort ity; (*k*) The effects of feeds upon the quality of eggs; (*l*) The eff of feeds upon the quality of flesh of table fowls; (*m*) The effect cotton-seed meal upon poultry breeding stock, egg production, velopment of the young, and upon constitutional vigor; (*n*) T relative value of various animal proteins for feeding fowls; (Mendelian studies. Students who select poultry subjects for maj and investigational work will be classified in the Poultry Science I vision. Students selecting other livestock investigational proble will be classified in the Animal Husbandry and Dairy Division.

POULTRY HUSBANDRY.

Equipment.

The Poultry Science Department is provided with a plant co taining a number of breeding pens for a study of types, with nece sary yards. The houses are of types well suited to poultry keepi

in North Carolina. They contain an incubator room with three different makes of incubators; and a brooder house, which can be heated by hot water when necessary. Indoor brooders of several different kinds are used, including fireless and heated types, an egg-storage compartment and grain-sprouting room, feed and mixing room, feed cutters, grinders, and other necessary equipment. The equipment also includes:

A teaching laboratory in which classes in egg candling, market egg grading, fattening tests, dressing and scoring, caponizing, insect powder preparation, dissection and autopsy and poultry judging are held.

A demonstration laboratory containing models of plants, samples of feeds, samples and grades of feathers, poultry feeders, water fountains, brooders, incubators, egg crates and containers, coops and crates, trap nests, models of buildings, building materials and innumerable other poultry appliances as well as specimens of disease tissue and parasites.

The research laboratories in this course furnish excellent material for the classroom, and students profit by all the work done in the Department.

Subjects of Instruction.

50. Elementary Course.—This course deals with breeds, breeding, poultry-house construction and ventilation, principles of feeding, and a brief study of feeds. It includes, also, natural and artificial incubation and brooding, dressing and marketing poultry, and the packing and marketing of eggs, mixing feeds, feeding, care of the houses and runs, construction and repair work. Each student is required to operate a bone-grinder, feed-cutter, and grain-mixer, and to learn sprouting as a source of succulent food. Parasites and their control and the common diseases of poultry, and how to prevent or control them, will be considered. This course is open to First- and Second-Year Work Course students for three periods a week during the second term, and to the One-Year and the second year of the Two-Year Agricultural Course. Fee, $1. Doctor KAUPP, Mr. MCCOY.

51. General Course.—This will be divided as follows: Four weeks will be devoted to a discussion of the various phases of the poultry industry and to an elementary study of breeds and breeding. Four weeks will be occupied with a study of the principles of ventilation, sanitation, and poultry-house construction. Four weeks are assigned to the elementary study of parasites and diseases of fowls. Six weeks will be devoted to the anatomy of the digestive tract and the physiology of digestion and to a study of the principles of feeding. Work in the poultry laboratory and at the poultry plant will be a

part of this course, and will be an application of the principles taught. This course is for all regular students who are taking poultry for the first time. *Poultry Culture, Sanitation, and Hygiene* will be used as text. Three periods, first term, Junior year. Fee, $1. Doctor KAUPP, Mr. WHITE, Mr. MCCOY.

52. Advanced General Course.—The time in this course will be assigned as follows: four weeks to a study of balancing rations and feeding; four weeks to commercial plant construction and plant management; four weeks to the study of market grades of eggs and practical market methods; six weeks to (1) the study of market grades of poultry and the proper methods of dressing, handling, grading, refrigerating, packing, and shipping same; (2) a study of the methods of saving feathers, grading, storing, packing, curing and shipping same; (3) a study of the methods of collecting, preserving and handling the poultry manure. Three periods, Junior year, second term. Fee, $1. Doctor KAUPP, Mr. WHITE.

53. Specialized Marketing.—First, a six-weeks detailed study of grading, handling, preserving, refrigerating, storing, packing, and shipping eggs. This will be followed by a detailed study of at least three large markets and of ten North Carolina markets, noting fluctuations in market prices and the changes in the feed markets for the same periods. Six weeks will be devoted to finishing, sticking, picking, trussing, scoring, grading, refrigerating, shaping, packing, and shipping dressed poultry. A study of the market grades in detail and the fluctuations of the market prices, together with a study of the fluctuations of the prices of feeds, will be given for the same length of time. This will include the cost of production. Six weeks are devoted to live fowls, finishing, grading, handling, shipping, and a similar study of the live poultry markets as above. Actual shipping experience will be given. Three periods, Junior year, first term. Fee, $1. Doctor KAUPP, Mr. MCCOY.

54. Breeding and Judging.—This is a detailed study of the origin of each breed, of the types and varieties, and of mating birds for the best results. Students taking the poultry course will have the opportunity to mate a pen of birds of any of the twenty breeds on the College and Station plant and care for them for a year and note the results in the progeny. To aid in this study there are colored plates also cards mounted with typical feathers from all breeds. A study of the twenty breeds on the College and Station farm. *The American Standard of Perfection* will be used as a text. Three periods a week second term, Senior year. Doctor KAUPP.

55. Anatomy and Physiology.—A complete course in the anatomy and physiology of the domestic fowl will be given. This includes

study of the bony structure, muscles, ligaments and tendons, digestive structure, genito-urinary apparatus, the circulatory system, the nerves, and the special senses. Complete dissections will be made. This course prepares the student for the detailed study of diseases. Three periods a week, first term, Senior year. Fee, $1. Doctor KAUPP.

56. Diseases.—In this course the time will be divided as follows: Four weeks to a detailed study of medical parasitology, giving the habits of the parasites affecting the domestic fowls, effects upon their host, and methods of their eradication; six weeks to noncontagious diseases and their treatment; eight weeks to contagious diseases, prevention or control, and treatment. Laboratory work will be given to accompany each division. Museum specimens as well as autopsies and clinical cases from the research laboratory will be used. *Diseases of Poultry and Their Treatment* will be used as a text. Three periods a week, second term, Senior year. Doctor KAUPP.

57. Incubation, Brooding, and Flock Management.—This course will be divided as follows: Four weeks to the running of an incubator. Each student operates his own incubator. Eight weeks to lectures and practice work in operating a brooder. Each student operates his own brooder, taking the chicks he hatches in the incubator. Six weeks to broiler feeding and caponizing and capon production work. During the entire course the student has charge of a plant flock, caring for the birds and summing up at the end of the month the various details of the accounting. Fee, $2. Three periods a week, second term, Senior year. Doctor KAUPP, Mr. WHITE.

VETERINARY SCIENCE.

Equipment.

For instruction in the above subjects, the department is provided with offices, lecture-rooms, laboratories, pharmacy-room (for drugs and surgical instruments), and dissecting-room.

The offices contain the usual office fixtures, besides a library of most of the standard works on veterinary medicine in English.

For use in classroom and laboratory, the department is supplied with mounted skeletons of man and of the horse and cow; also numerous specimens of tumors, tuberculous organs, bony lesions of spavins, splints, ring bones, and side bones. Besides the collection illustrating diseased tissues, the department has a large collection of parasites which infest domestic animals.

The laboratories are provided with wall cases, work tables and desks, washing sinks, hot and cold water, gas burners, and electric lights. The laboratory for special work has microtome (for cutting sections of tissue for study with microscope), glass slides, stains, and the various materials required for making temporary and permanent mounts of healthy and diseased tissues. The larger laboratory is supplied with the necessary equipment for conducting exercises in physiology.

In the pharmacy-room are samples of a large number of drugs used in comparative medicine, and a more or less complete set of surgical instruments, including an operating table for small animals, and casting harness and slings for larger animals.

Subjects of Instruction.

60. Comparative Physiology.—This course, which combines elementary anatomy and physiology both of man and of domestic animals, is especially designed to teach the student the structures, uses, and phenomena of the human mechanism; and as these are common and analogous to those of domestic animals, attention will be given to a comparison of the fundamentals of all systems in each class. The subject of anatomy will be taught by use of mounted skeletons of man, horse, cow, and hog; by dissection of small animals; and from collections of fresh specimens of the various organs and prepared material in the laboratory. This will be followed by a comparative study of the functions of the various systems and organs of the body, such as the skeleton, muscles, nerves, digestion, reproduction, etc. The subject will be covered by text-book, lecture, recitation, demonstrations, and laboratory exercises. Three periods, first term; two periods, second term. Required of Sophomores. Fee, $1. Doctor HANDLEY.

61. (a) Anatomy and Physiology of Domestic Animals.—No one will be qualified to make a comprehensive study of livestock or be able to closely differentiate between normal and abnormal structures and functions of the various parts of the animal body unless he is familiar with the fundamentals of anatomy and physiology. Having had an insight into the subject previously in course 60, the student now goes more into detail. The subject-matter is given by the use of text-book, supplemented by lecture, and illustrated by charts, models, skeletons, sketches, and dissections. Special attention will be given to the systems and organs of digestion, reproduction, locomotion, respiration, and circulation. Three periods, first term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS and Doctor HANDLEY.

61. (b) Hygiene, Sanitation, and Diseases of Animals.—Preventive medicine is the goal of the physician, the veterinarian, and the sanitarian. In order to be a livestock sanitarian the animal husbandman must, therefore, have a rather comprehensive knowledge of hygiene and sanitation. Considerable time will be devoted to a study of the causes of disease and the means of avoiding them through hygienic and sanitary measures. Three periods, second term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS and Doctor HANDLEY.

62. (a) Veterinary Science: Advanced Physiology.—Appreciating the value of many of the interesting phenomena in physiology, opportunity is given to consider those especially applicable for the animal husbandman and the teacher. Three periods, first or second term. Elective for Seniors in Animal Husbandry, Poultry, and Normal divisions. Professor ROBERTS and Doctor HANDLEY.

62. (b) Veterinary Science: Infectious Diseases.—This course, while correlating with the Junior work and Senior physiology, will not require these courses as prerequisites. Attention will be given to those infectious diseases that are common in the South, and especially those that occur in both men and animals. Three periods, first or second term. Elective for Seniors in Animal Husbandry and Normal divisions. Professor ROBERTS and Doctor HANDLEY.

63. Histology.—A microscopical study of the tissues of the body, treating of the cell as the unit of structure, and of its functions; also of tissues, their classification, and their relation to the structure of organs. From dissections, clinics, and proximity to slaughter-house, abundance of histological material of various animals is obtainable. Three periods. Required of Juniors in Veterinary Division. Fee, $1. Doctor HANDLEY.

64. Veterinary Anatomy.—This subject will deal with the study of the skeleton, including bones and joints, and of the muscles. A complete dissection of the muscles of the horse will be made. Three periods. Required of Juniors in the Veterinary Division. Fee, $2. Professor ROBERTS.

65. Materia Medica.—This study of the drugs used in comparative medicine will treat of their classification, composition, physiological actions, and doses. Three periods, second term. Required of Juniors in Veterinary Division. Professor ROBERTS.

66. Veterinary Anatomy.—A continuation of Course 64. A study of the digestive, respiratory, circulatory, urinary, reproductive, and nervous systems will be made, with dissections of each in the horse. Three periods. Required of Seniors in Veterinary Division. Fee, $2. Professor ROBERTS.

67. Veterinary Physiology.—A comparative study of the bodily functions of the various domestic animals is made, with special reference to digestion, respiration, circulation, reproduction, and secretion. Three periods. Required of Seniors in Veterinary Division. Doctor HANDLEY.

68. Experimental Physiology.—Appreciating the value of many of the interesting phenomena in physiology recently discovered, opportunity is here given to consider those especially applicable to the animal husbandman, the teacher, and the research student. The course will cover investigations dealing with various phases of reproduction and milk secretion; of internal secretions; and of those phenomena of the circulation resulting from infections, pregnancy, etc., such as hemolysis, bacteriolysis, and agglutination. First or second term. Elective for Seniors. Professor ROBERTS and Doctor HANDLEY.

69. Materia Medica and Pharmacy.—Course 65, as described above, will be continued. The Pharmacy Course will include prescription writing and laboratory work in the preparation, compounding, and preserving of medicines. Three periods, first term. Fee, $1. Required of Seniors in Veterinary Division. Professor ROBERTS and Doctor HANDLEY.

70. General Pathology.—As contrasted with special or systematic pathology, this course will treat of general causes of disease, congenital, postnatal, infectious, and noninfectious; of morbid and reactive tissue processes, congestion, inflammation, fever, immunity, etc.; of progressive tissue changes, regeneration, tumors, etc.; of regressive tissue changes, degeneration, necrosis, death, etc. A large number of specimens of diseased organs and tissues already present in the museum, and opportunity for collecting others from clinics and abattoir, insure plenty of material to demonstrate various macroscopical and microscopical tissue changes. Two periods. Required of Seniors in Veterinary Division. Fee, $1. Doctor HANDLEY.

71. Diagnosis and Clinics.—Diagnosis is taught for the purpose of studying the methods of examining animals to detect disease in them and to determine the location, character, and cause for same. The subject will be discussed largely from a clinical standpoint, but the autopsy, lesions, and laboratory means of diagnosis will likewise be considered. Clinics will be held regularly at a veterinary hospital and practical demonstrations of diagnosis will be made. Three periods, second term. Required of Seniors in Veterinary Division. Professor ROBERTS and Doctor KOONCE.

Agricultural students wishing to pursue a veterinary course will be given opportunity during their Junior and Senior years to elect subjects required in the Freshman and Sophomore years of such a course. This arrangement will permit one to complete two four-year courses in six years time. With the close correlation between agriculture, especially along live-stock lines, and veterinary medicine, this makes a most satisfactory arrangement.

ZOOLOGY AND ENTOMOLOGY.

Equipment.

The Department of Zoology and Entomology occupies the second floor of the Animal Husbandry Building. This provides ample space for offices, laboratories, classroom, museum, library, and photographic room.

The students' laboratory is a large, exceptionally well lighted room which is provided with the usual accessories of a zoological laboratory. The laboratory tables are furnished with "Kewaunee" and "Albarene" tops, and provide ample working space and individual lockers for each student.

The classroom is furnished with a Leitz projection apparatus and with a large series of charts illustrating the principal classes of animals.

The museum contains a rapidly growing synoptic collection illustrating the principal groups of animals found in North Carolina.

The library contains some of the more important books on zoological and entomological subjects and receives the current periodicals dealing with these subjects.

Subjects of Instruction.

80. Elementary Zoology.—An elementary study of all forms of animals, with special reference to the more important economic groups, is given by text-book, library, laboratory and field work, with supplementary lectures. This course is designed to give the student a general knowledge of the animal kingdom, and to lay the foundation for the special work which follows. Three periods, first and second terms. Required of Freshmen. Prerequisite for all other courses in the Department. Fee, $2. Professor METCALF, Mr. SPENCER, Mr. WARE.

81. Zoology.—This is a course in the study of the cell. Cell division, maturation, the morphology of the spermatozoon and the egg, fertilization, and cleavage are studied in detail. The student is required to collect and prepare his own material as far as prac-

ticable. Two periods, second term. Required of Sophomores. Fee, $2. Professor METCALF, Mr. SPENCER.

82. Vertebrate Zoology.—This course will cover the comparative embryology of the principal groups of vertebrates, together with a discussion of the comparative anatomy of the vertebrates. Three periods, first term. Required of Seniors in Veterinary Division. Fee, $2. Professor METCALF.

83. Zoology—Elective.—A course designed especially for students who wish to review the fundamental principles of zoology, either as a basis for teaching or for investigational work. Two or three periods, first and second terms. Elective in Normal Division. Professor METCALF.

84. Elementary Entomology.—The elements of insect anatomy, classification, and development as a foundation for economic entomology is covered by text-book, lectures, and laboratory work. Three periods, first term. Required of Juniors in Horticultural Division. Fee, $1. Professor METCALF, Mr. SPENCER.

85. Elementary Economic Entomology.—Injurious insects of field and truck crops, garden, orchard, barn and household are studied from the standpoint of their life histories and control. Text-book, laboratory, and field work. Three periods, second term. Required of Seniors in Agronomy and Normal divisions. Fee, $1. Professor METCALF, Mr. SPENCER.

86. Economic Entomology.—The insect enemies of domestic animals, grains and forage crops are studied from the standpoint of structure, development, and control. Lecture, laboratory, and field work. Three periods, second term. Required of Seniors in Animal Husbandry Division. Fee, $1. Professor METCALF, Mr. SPENCER.

87. Horticultural Entomology.—Systematic study of the injurious insects of orchard, shade, and ornamental plants, together with a study of the insect enemies of the principal truck and garden crops from the standpoint of their life histories and control. Three periods, second term. Required of Seniors in Horticultural Division. Fee, $1. Professor METCALF.

88. Graduate Zoology.—This course is designed to fit the student for research or teaching in either Zoology or Entomology. The student may elect from the following groups: (1) Invertebrate Morphology, (2) Comparative Anatomy, (3) Vertebrate Embryology, (4) Invertebrate Embryology, (5) Ecology, (6) Animal Micrology, (7) Cytology, (8) Systematic Entomology, (9) Medical and Veterinary Entomology, (10) Parasitology, (11) Economic Entomology of fruit trees, shade trees, greenhouse, corn, cotton, or tobacco. Four or eight periods. Professor METCALF.

CHEMISTRY.

90. Inorganic Chemistry.—Hessler and Smith's *Essentials of Chemistry*. The common elements and their principal compounds, together with some of the fundamental principles of the science, are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. MULLEN.

91. Inorganic Chemistry.—Laboratory work. Hessler and Smith's *Laboratory Exercises*. Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the classroom are performed by the student. One period. Required of Freshmen. Fee, $2. Doctor FREDERICK.

92. Analytical Chemistry.—Tower's *Qualitative Chemical Analysis*. A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys, and minerals. Three periods. Required of Sophomores. Fee, $4. Doctor MILLER.

93. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis*. Gravimetric and volumetric analysis. Special attention is given to the determination of elements in fertilizers, feedstuffs, and other substances of special interest to agricultural students. Three periods, one term. Required of Juniors in Agriculture. Fee, $2. Doctor WILLIAMS.

94. Agricultural Chemistry.—Stoddart's *Chemistry of Agriculture*. A study of plants and animals, their nutrition and products from a chemical standpoint. Three periods, one term. Required of Juniors in Agriculture. Fee, $1. Professor WITHERS.

95. Organic Chemistry.—Moore's *Outlines of Organic Chemistry*. A study of the fundamental principles of organic chemistry and of the most important organic compounds, together with laboratory work. Three periods. Required of Seniors in Agronomy, Animal Husbandry, Normal, and Poultry divisions. Doctor DOBBINS.

PHYSICS.

100. Agricultural Physics.—Physics is the study that treats of the action of all forces wherever found, whether in an engine or in the soil, in the atmosphere causing a change in weather or in a seed causing it to swell. Agricultural students must, therefore, study

Physics to get a proper understanding of the cause and method of action of the mechanical and life forces that they meet in their other studies. The course in Physics required of Agricultural students is made thorough, and the subject-matter taken up is made to bear on the practical problems of agriculture. The course embraces lectures, recitations on text-book, and demonstrations and measurements in the laboratory. The lectures are given with demonstrations and measurements of forces actually operating in machines and instruments as nearly as possible like those the student will meet in after life. The lectures also emphasize the historical development of the science for the purpose of giving the student an impulse toward continued development and study. They include a short course in the study of weather, and during the months of January and February weather maps and local observations are followed so as to give the students practical experience in forecasting. Two periods class work and one period demonstration or laboratory throughout the year. Required of Sophomores. Associate Professor HECK.

GEOLOGY.

97. Geology.— Introductory course in Geology. Pirsson and Schuchert's *Text-book of Geology, Part I.* A brief course treating of soil, the action of the various agencies on the land, building up of land by water, and the study of the principal constituents of the soil. Two hours, second term. Required of Sophomores. Doctor WILLIAMS and Mr. MULLEN.

MATHEMATICS.

110. Algebra.—Wells' *New Higher Algebra.* This course begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

111. Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises Five periods, second term. Required of Freshmen. Prerequisites, entrance requirements and a term standing of 50 per cent or more on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

ENGLISH.

120. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Assistant Professor PRATT, Mr. WEBBER.

121. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Assistant Professor PRATT, Mr. WEBBER.

122. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first term, and second term to March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

123. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

124. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods, two terms. Required of Juniors. Professor HARRISON, Associate Professor SUMMEY.

125. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Three periods, first term. Open to Seniors. Professor HARRISON.

126. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are

studied in this course. Essays will be continued as in the first term. Three periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

130. Market Distribution.—This course is designed to give the student an understanding of the present system of grading, packing, storing, selling, transporting, financing the sale of and collecting payments for farm products. The cost of the existing agencies will be considered from the point of view of the farmer, middleman, and consumer. A brief survey will be given of the methods of large-scale business organizations as efficient instruments for the distribution of products. Three periods, first term. Required of all Seniors in Agriculture, except Veterinary and Normal students. Required of Normal students in Junior year. Professor CAMP.

131. Organization for Marketing and Credit.—A survey will be made of the methods of operation of successful marketing and credit organizations in Europe and the United States. The kind of organization needed for marketing North Carolina products will be considered. The necessity for credit on the farm and the method of meeting the need by commercial banks, by coöperative banks in Europe and the United States, and by loan agencies generally will be considered in relation to the production, storage, and sale of farm products. Three periods, second term. Required of all students of Agriculture in the Senior year, except Veterinary and Normal students. Normal students must take this course in the Junior year. Professor CAMP.

132. Railroad Transportation.—A consideration of the different systems of railroad rates as affecting the shipment of farm products and the location and development of industries generally. Designed to meet the needs of students in Engineering, Textile Industry, and Agriculture. Three periods, first term. Elective for Seniors. Professor CAMP.

133. Trusts, Pools, and Combinations.—A study of the conditions which have led to the development of large business combinations; a description of the methods of organization of typical industries; an analysis of the advantages and disadvantages to be derived from large-scale business organization; and a consideration of the different policies of Government regulation. Three periods, second term. Elective for Seniors. Professor CAMP.

134. Cotton Grading.—A course in cotton grading will be arranged if a sufficient number wish to take it.

MODERN LANGUAGES.

The purpose of the work in this Department is to enable the student to read and become acquainted with German, French and Spanish scientific literature. Grammar is taught only secondarily and as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years' work in German is required of students taking the Chemical course, and it is recommended that students in this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

140. Beginner's German.—Grammar, composition, and translation. Bacon's *German Grammar.* Reader to be selected. Elective for Juniors. Both terms, three hours. Assistant Professor HINKLE.

141. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical German the second term. Gore's *German Science Reader* and Wallentin's *Grundzüge der Naturlehre.* Elective for Seniors. Both terms, three hours. Assistant Professor HINKLE.

143. Beginner's French.—Grammar, composition, and translation the first term. Introductory scientific French the second term. Giese's *Graded French Method.* Bowen's *First Scientific French Reader.* Junior elective. Both terms, three hours. Assistant Professor HINKLE.

144. Beginner's Spanish.—Grammar, composition, and translation. Marion y des Garenes' *Introduccion a la Lengua Castellana,* first term. Ramsey's *Elementary Spanish Reader,* second term. Senior elective. Three hours a week, both terms. Assistant Professor HINKLE.

145. Intermediate Spanish.—A continuation of Beginner's Spanish. Designed primarily to develop rapid reading and translation and conversation. A number of easy Spanish stories are read. Some attention is given to composition and letter-writing. Open to students who have had not less than one year's work in the language. Senior elective. Three hours, both terms. Assistant Professor HINKLE.

SHOP AND DRAWING.*

150. Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As

*For description of equipment see page 127.

much time as possible is spent in making models of small buildings, gates, etc. Required of Freshmen. Two periods, second term. Mr. WHEELER.

152. Drawing.—Elementary drawing, elementary projection, freehand sketching and lettering. Geometrical problems. Freehand drawing. Two periods, first term. Required of Freshmen. Mr. RICHARDSON.

MILITARY SCIENCE.

153. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

154. Tactics.—Theoretical instruction in Infantry Drill Regulations, Field-service Regulations, Map Reading, and Small Arms Firing Manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

EDUCATIONAL PSYCHOLOGY.

160. Educational Psychology.—The work of this course is designed primarily for students who intend to teach in the rural high schools. The needs of such students will be constantly kept in view, and to this end the work will be made as practical as possible. The application of the principles of psychology to specific problems of teaching will be the final object of the course. The work of the first term will be devoted largely to the acquisition and meaning of the psychological terminology necessary for the understanding of such problems. Such phases of consciousness as sensation, attention, perception, emotion, imagination, and memory, as well as instinct, habit, will, association, and reason will be especially considered. Tichener's *Primer of Psychology* and Seashore's *Elementary Experiments in Psychology* will form the basis of the work of this part of the course. In the second term the work will consist in the application of the knowledge gained in the first half of the course to the problems of the teacher in general, and especially to those which bear upon the work of the teacher in the rural high school. Special themes on rural high school problems will be assigned each member of the class for investigation and report. Thorndike's *Principles of Teaching* will be used. Required of Seniors in the Normal Division. Three hours a week, both terms. Assistant Professor HINKLE.

SHORT COURSES IN AGRICULTURE.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following short courses are offered. None of these courses will lead to graduation, and they are not in any sense intended as preparatory courses to the regular four-year classes. They are designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen spheres of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take these shorter courses will be carefully drilled in the handicraft and mechanism of their art, and in the application of elementary science to the farm, dairy, garden, and orchard.

1 (c). TWO-YEAR COURSE IN AGRICULTURE.

This course offers, in addition to the purely agricultural branches, introductory and cultural subjects, and thus enables the student to secure not only all the technical and practical work of the One-year Course, but Physiography, Physics, English, and Mathematics, in addition, and all the better prepares young men to become farmers, farm managers, and teachers of agriculture and allied branches in the public schools. A description of the equipment will be found on page 64 and following pages.

TWO-YEAR COURSE.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	2	2
Carpentry	2	0
Drill	3	3
English	5	5
Mathematics	5	5
Physics	2	2
Physiography	0	2
Physiology and Hygiene	2	0
Plant Culture	0	2
Totals	21	21

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Animal Husbandry and Dairying	3	3
Botany	3	0
Chemistry	3	0
Drill	3	3
English	3	3
Entomology	0	3
Horticulture	3	3
Poultry	3	0
Soils and Fertilizers	0	3
Veterinary Science	0	3
Totals	24	24

Subjects of Instruction.

Agriculture, First Year.—An introductory course treating of the important field crops of the State. The history, classification, adaptation, culture, harvesting, marketing, and use of corn and small grain. Two periods. Mr. Hodson.

Agriculture, Second Year.—The second year is devoted to a critical study of cotton, legumes, hay, forage and pasture crops, silage, farm equipment, and farm management. Fee, $1. Three periods. Professor Newman and Mr. Hodson.

Elementary Chemistry.—Classroom and laboratory instruction. Cook's *Practical Chemistry for High School Students.* A study of the fundamental principles of the science and of the common elements and their compounds. Special attention is given to the constituents of the soil, the plant, fertilizers, and feeding stuffs. A laboratory course accompanies the classroom work. Under the direction of a teacher, the student performs experiments illustrating the lectures. Three periods, first term. Laboratory fee, $1. Professor Withers and Mr. Mullen.

Physics.—A general science course is given under the head of Physics. The course embraces the historical development of the scientific ideas of today, with special emphasis on the development

of practical machines and engines. Practical determinations of densities, strengths of materials, measurements of heat and electricity, and everyday determinations are made before the class. Machines are analyzed and the relations of force and energy are worked out. Practical heating and the wiring of electric circuits are also studied. The purpose of the course to be both educative and practical is carefully followed. Required of First-year students. Two periods. Mr. MARTIN.

Veterinary Science, Second Year.—The lectures on this subject will treat of elementary veterinary anatomy, physiology, hygiene, and sanitation. The general causes for disease and the means of avoiding and controlling it will be discussed. Three periods. Second term. Professor ROBERTS.

Physiography, First Year.—A study of the natural agencies affecting the earth's surface, soil, water, etc., and temperature, and their effect upon plants and animals. Two periods, second term. Mr. JOSLYN.

Soils, Second Year.—This will include a study of the soils of the State; their formation and classification into agricultural types; their physical properties; relation to moisture and air supply; best methods of conserving and regulating the soil moisture; principles and practice of drainage. The effect of different soil and crop treatments, such as rotation, cultivation, and fertilization, will be studied. Considerable attention will be given to humus, farm manures, and green manures, and to the use and home-mixing of fertilizers, with special reference to the time and methods of using. Three periods, second term. Deposit, $1. Mr. JOSLYN.

Principles of Plant Culture, First Year.—A course in which the functions of various parts of plants; the activities engendered by heat, cold, moisture and light; and the effect of soil and climate upon the growth of plants are considered. The propagation, planting, and training of plants are also included. Practice work consists in laboratory and field exercises demonstrating the facts studied. Two periods, second term; recitations, one hour; practice, two hours per week. Mr. HAYDEN.

Fruit Culture, Second Year.—A course in practical fruit growing as applied to the different sections of the State. The principal fruits are treated as to location, sites, soils, choice of varieties, best method of propagation, preparation of the land, laying out the orchard, its planting and training, spraying, fertilization, management, and the harvesting, storing, and marketing of the fruit. Three periods, first term. Mr. HAYDEN.

Vegetable Gardening, Second Year.—This course treats of the growing of vegetables for home use, the culture of the principal "truck" crops; and the forcing of vegetables under glass. Practice includes the work of seed sowing, transplanting, and culture of the leading vegetable crops, both under glass and in the field. Each student is required to plan, plant and manage a definite plot assigned to him for the purpose of applying the knowledge gained in the classroom. Three periods, second term. Mr. HAYDEN.

Botany and Plant Diseases.—The structure of seed plants is studied and the general principles of nutrition, growth, and reproduction are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking field, orchard, and garden crops; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Second year. Three periods, first term. Professor WOLF.

Animal Husbandry.—Study of breeds, judging, and management of livestock, animal breeding, and stock feeding. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Second year. Three periods, first and second terms. Professor GRAY and Mr. DRAIN.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term, second year Mr. DRAIN.

Poultry Husbandry—Elementary Course.—This course deals with breeds, breeding, poultry-house construction and ventilation, feeds and the principles of feeding. It includes also natural and artificial incubation and brooding, dressing and marketing poultry and the packing and marketing of eggs, mixing feeds, feeding care of the houses and runs, construction and repair work. Each student is required to operate a bone-grinder, feed-cutter, and grain mixer, and to learn sprouting as a source of succulent food. Parasites and their control and the common diseases of poultry and how

to prevent or control them will be considered. This course is open to First- and Second-year Work Course students for three periods a week during the second term, and to the One-year and the second year of the Two-year Agricultural Course. Fee, $1. Doctor KAUPP, Mr. McCOY.

Poultry Husbandry.—This course includes a discussion of the poultry industry, market conditions and demands, classes, breeds and types of poultry, and breeding problems, including the selection of laying types, meat types, and utility types of birds. Among the subjects discussed are the management of poultry on the farm, the care and marketing of eggs, artificial and natural incubation, and the proper construction of suitable poultry houses for the farm. Practical work will be given in operating the bone-grinder, feed-mixer, and feed-cutter, and in sprouting grain for the purpose of furnishing succulent feed. Equipment in laboratory and plant gives the student an opportunity to familiarize himself with the practical side of the work. This course is for all students taking poultry work for the first time. Second year. Three periods, first term. Doctor KAUPP.

Physiology and Hygiene, First Year.—The principles of physiology and hygiene are essential to the rational feeding and care of the human body, as well as those of animals. Lectures, recitations, and demonstrations will be used in covering this subject in an elementary way. Two periods, first term. Doctor HANDLEY.

Veterinary Science, Second Year.—The lectures on this subject treat of elementary veterinary anatomy, the care of livestock to prevent diseases, and the treatment of some of the most common diseases. Three periods, first term. Doctor ROBERTS, Doctor KOONCE.

Elementary Zoology and Entomology.—This is a short course in which the beneficial and injurious animals, including insects, are discussed in their relations to the farm. The various insecticides and methods of spraying are also included. Three periods, second term, second year. Fee, $1. Professor METCALF, Mr. WARE.

Algebra.—Wells' *New Higher Algebra.* A thorough treatment of elementary Algebra, beginning with simple equations and embracing simultaneous equations in two or more unknowns, problem solving, involution, evolution, theory of exponents, and radicals, quadratic equations, ratio and proportion, binomial theorem, and progression. First term, five periods. Mr. HARRELSON, Mr. JETER, Mr. SMITH.

Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry.* A complete course in plane geometry, including numerous original exercises. Five periods, second term. Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. First year, five periods. Mr. WEBBER.

English Composition and Rhetoric.—After a review of grammatical principles, special attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Second year, three periods. Mr. WEBBER.

Carpentry.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. First year, two periods. Mr. WHEELER.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Lieutenant SPURGIN and Cadet Officers of the Battalion.

Physics.—A general science course is given under the head of Physics. The course embraces the historical development of the scientific ideas of today, with special emphasis on the development of practical machines and engines. Practical determinations of densities, strength of materials, measurements of heat and electricity, and other everyday determinations are made before the class. Machines are analyzed and the relations of force and energy are worked out. Practical heating and the wiring of electric circuits are also studied. The purpose of the course to be both educative and practical is carefully followed. Required of First-year students. Two periods. Fee, $1. Mr. MARTIN.

ONE-YEAR COURSE IN AGRICULTURE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Animal Husbandry and Dairying	3	3
Carpentry	1	1
Chemistry	3	0
Drill	3	3
English	3	3
Entomology	0	3
Horticulture	3	3
Plant Life	3	0
Poultry	3	0
Soils and Fertilizers	0	3
Veterinary Science	0	3
Totals	25	25

Subjects of Instruction.

Agriculture.—This condensed course in agriculture consists of class, laboratory, and field work with the chief crops of the State from seeding to market; crop rotation; farm equipment and farm management. Fee, $1. Three periods through the year. Professor Newman and Mr. Hodson.

Soils and Fertilizers.—This will include the study of the soils of the State, their formation and classification into agricultural types; their physical properties, relations to moisture and air supply; best methods of conserving and regulating the soil moistures; principles and practice of drainage; effect of different soil and crop treatments, such as rotation, cultivation, and fertilization. Considerable attention will be given to humus, farm manures and green manures, and the use and home-mixing of fertilizers, with special reference to the time and methods of using and the best mixtures for the different types of soil. Three periods, second term. Deposit, $1. Mr. Joslyn.

Animal Husbandry.—Study of breeds, judging and management of livestock, animal breeding, and stock judging. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Three periods, first and second terms. Professor McNUTT and Mr. SALISBURY.

Veterinary Science.—The lectures on this subject will treat of elementary veterinary anatomy, physiology, hygiene, and sanitation. The general causes for disease and the means of avoidance and control will also be discussed. Three periods, second term. Professor ROBERTS.

Poultry Husbandry—Elementary Course.—This course deals with breeds, breeding, poultry-house construction and ventilation, and principles of feeding, and it includes a brief study of feeds. It includes, also, natural and artificial incubation and brooding, dressing and marketing poultry, and the packing and marketing of eggs, mixing feeds, feeding, care of the houses and runs, and construction and repair work. Each student is required to operate a bone-grinder, feed-cutter, and grain-mixer, and to learn sprouting as a source of succulent food. Parasites and their control and the common diseases of poultry, and how to prevent or control them, will be considered. This course is open to First- and Second-year Work Course students for three periods a week during the second term, and to the One-year and the second year of the Two-year Agricultural Course. Fee, $1. Doctor KAUPP, Mr. McCOY.

Fruit Culture.—This course treats of fruit growing as applied to the different sections of the State and the possibilities embodied in its further development. A text-book on the general subject of fruit culture is supplemented by lectures on the leading fruits, dealing with the kind and preparation of soil for fruits, laying out the orchard, varieties, methods of propagation, planting, cultivation, fertilizing, pruning, harvesting, and marketing. Practical exercises are given in laboratory, orchards, and vineyards, which include budding, grafting, top-grafting; making of cuttings; pruning of fruit and ornamental trees; fruit bud studies, planting and transplanting; identification of varieties; packing; and handling of nursery stock. Three periods, first term. Mr. HAYDEN.

Vegetable Gardening.—This course treats of the trucking industry of the State, and the growing of vegetables for home use. A text-book is used, supplemented by lectures on the growing, handling, and marketing of the leading vegetables. Practical exercises are given in the laboratory and field which include germinative tests of seeds; seed sowing; methods of transplanting and culture; ma-

nipulation of garden tools; construction and management of hotbeds and cold-frames; and protection of plants from insects. Three periods, second term. Mr. HAYDEN.

Plant Life.—The structure of seed plants and the general principles of nutrition, growth, and reproduction are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking farm crops, fruit trees, etc.; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Three periods, first term. Professor WOLF.

Elementary Chemistry.—Classroom and laboratory instruction. Cook's *Practical Chemistry for High School Students.* A study of the fundamental principles of the science, the common elements, and their compounds. Special attention is given to the constituents of the soil, the plant, fertilizers, and feeding stuffs. A laboratory course accompanies the classroom work. Under the direction of a teacher, the student performs experiments illustrating the lectures. Three periods, first term. Laboratory fee, $1. Professor WITHERS and Mr. MULLEN.

Elementary Zoology and Entomology.—This is a short course in which the beneficial and injurious animals, including insects, are discussed in their relations to the farm. The various insecticides and methods of spraying are also included. Three periods, second term. Fee, $1. Professor METCALF, Mr. WARE.

Carpentry.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. Two hours, first and second terms. Mr. WHEELER.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. Three hours a week. Required of one-year students. Mr. WEBBER.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may elect either the drill or three hours extra in some other subject in its place. Lieutenant SPURGIN and Cadet Officers of the Battalion.

THE WORK COURSE IN AGRICULTURE.

In order that needy and ambitious young men who are familiar with farm work and are able and willing to do it may get a practical agricultural training, the College has established what is known as its Work Course. The young men in this course attend classes one week and work on the College plant the other week. They do the work on the College farm, in the orchard, and in the poultry plant. They are paid enough for this work to defray their immediate college expenses. In all, twenty-four young men are admitted to this course, but only twelve are received in any one year. These men are admitted by personal application on blanks furnished by the College, and must pledge themselves to remain in this course two years.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agricultural Mechanics	3	3
Agriculture	3	3
Animal Husbandry	3	3
Animal Studies	3	0
Botany	0	3
Chemistry	3	0
English	3	3
Horticulture	3	3
Poultry	0	3
Soils and Fertilizers	3	3
Totals	24	24

Second Year.

Subjects.	Periods a Week	
	1st Term.	2d Term.
Agricultural Mechanics	3	3
Agriculture	3	3
Animal Husbandry and Dairying	3	3
Drainage	3	0
English	3	3
Entomology	3	0
Farm Management	0	3
Horticulture	3	3
Plant Diseases	0	3
Poultry	0	3
Veterinary Science	3	0
Totals	24	24

Subjects of Instruction.

Agriculture.—A study of field crops, farm equipment, and farm management, including recitation and laboratory exercises and field work. Instruction and practical exercises with the chief crops of the State, including operation from seed-time to harvest, together with appropriate rotations for the various crops. Three periods through the course. Professor Newman and Mr. Hodson.

Farm Management.—Types of farming and their relation to soil, climate, labor, transportation, population, capital, and land values; operating expenses; systems of land tenure; location and arrangement of buildings, roads, fences, etc.; farm records and accounts; standard of living; schools and churches. Three periods, second term of second year. Professor Newman.

Poultry Husbandry—Elementary Course.—This course deals with breeds, breeding, poultry-house construction and ventilation, and principles of feeding; and it includes a brief study of feeds. It includes, also, natural and artificial incubation and brooding, dressing and marketing poultry, and the packing and marketing of eggs, mixing feeds, feeding, care of the houses and runs, construction and repair work. Each student is required to operate a bone-grinder, feed-cutter, and grain mixer, and to learn sprouting as a source of

succulent food. Parasites and their control and the common diseases of poultry and how to prevent or control them will be considered. This course is open to First- and Second-year Work Course students for three periods a week during the second term, and to the One-year and the second year of the Two-year Agricultural Course. Fee, $1. Doctor KAUPP, Mr. MCCOY.

Soils and Fertilizers.—A study of the origin, plant food, moisture, humus, tillage, and fertilization of soils; green manure, stable manure, and commercial fertilizers as factors in the maintenance of soil fertility; purchase and mixing of commercial fertilizers; composition and use of fertilizers to get best results on different classes of soil. Three periods through first year. Mr. JOSLYN.

Drainage.—Field work with levels in determining elevation and slope of land and in staking out and grading drains; benefits of drainage; factors determining cost; methods of constructing drains and terraces. Students will be required to work out and submit a plan for the complete drainage of a field. Three periods, fall term, second year. Mr. JOSLYN.

Animal Husbandry.—Study of breeds, judging and management of livestock, animal breeding, and stock judging. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Three periods, first and second terms, first year; first term, second year. Professor GRAY, Mr. DRAIN.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term, second year. Mr. DRAIN.

Veterinary Science.—The lectures on this subject will treat of elementary veterinary anatomy, physiology, hygiene, and sanitation. The general causes for disease and the means of avoidance and control will also be discussed. Three periods, first term, second year. Professor ROBERTS.

Fruit Culture.—This course treats of fruit growing as applied to the different sections of the State, and the possibilities embodied in its further development. A text-book on the general subject of

fruit culture is supplemented by lectures on the leading fruits, dealing with the kind and preparation of soil for fruits, laying out the orchard, varieties, methods of propagation, planting, cultivation, fertilizing, pruning, harvesting, and marketing. Practical exercises are given in laboratory, orchards, and vineyards, which include budding, grafting, top grafting; making of cuttings; pruning of fruit and ornamental trees; fruit bud studies, planting and transplanting; identification of varieties; packing; and handling of nursery stock. Three periods, first year or second year. Mr. HAYDEN.

Vegetable Gardening.—This course treats of the trucking industry of the State, and the growing of vegetables for home use. A text-book is used, supplemented by lectures on the growing, handling, and marketing of the leading vegetables. Practical exercises are given in the laboratory and field. These include germinative tests of seeds; seed sowing; methods of transplanting and culture; manipulation of garden tools; construction and management of hot-beds and cold-frames, and protection of plants from insects. Three periods, first year or second year. Mr. HAYDEN.

Botany and Plant Diseases.—The structure of seed plants is studied, and the general principles of nutrition, growth, and reproduction are discussed in an elementary and general way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking field, orchard, and garden crops; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Three periods, second term, first and second years. Professor WOLF.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. Three hours a week. First and second years. Mr. WEBBER.

Entomology.—This is a short course, in which the more noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, first term, second year. Professor METCALF, Mr. WARE.

Animal Studies.—This course will be devoted to a consideration of the relations existing between man and the other animals, excepting insects. Special emphasis will be placed upon the importance of various groups of animals, beneficial or injurious to the farmer. Three periods, first term, first year. Professor METCALF, Mr. WARE.

Elementary Chemistry.—Classroom and laboratory instruction. Cook's *Practical Chemistry for High School Students.* A study of the fundamental principles of the science, the common elements, and their compounds. Special attention is given to the constituents of the soil, the plant, fertilizers, and feeding stuffs. A laboratory course accompanies the classroom work. Under the direction of a teacher, the student performs experiments illustrating the lectures. Three periods, first term. Laboratory fee, $1. Mr. MULLEN.

Agricultural Mechanics.—In this course instruction will be given in the use of cement on the farm; the operation of gasolene and kerosene engines; water supply; electric lighting outfits for the farm; the making of fences, etc. Three periods a week, first and second years. Professor SATTERFIELD.

WINTER SHORT COURSE IN AGRICULTURE.

Begins January 9 and Ends February 6, 1917.

The Winter Course in Agriculture is a practical course in farming given by practical men for practical farmers. It is open to all who are engaged in or interested in farming and is designed to aid the man who wishes to farm in a modern and business way, who wants larger and better returns for his labor, and who wants to make a better and more comfortable home on his farm. It is designed to aid farmers who wish:

To manage their soils so that there will be a gain and not a loss in soil fertility;

To use fertilizers and manures with less expense and with better results;

To save soil moisture and plant food;

To save the soil from washing away;

To rotate crops so as to add to crop yields and increase the fertility of the soil;

To select the best types and best individual dairy and beef cattle and to feed and manage them to the best advantage;

To judge all kinds of cattle, horses, hogs, sheep, and poultry;

To breed livestock so that each generation may be improved;

To produce and feed balanced rations for economy and best results;

To fight insect enemies intelligently and fungous and bacterial diseases with success;

To prevent diseases in livestock;

To care for livestock so as to keep them healthy and to get the most profitable return from their work and products;

To select, standardize, and stabilize farm poultry and proper methods of handling breeding and laying flocks, and to care for the sitting hen and her brood;

To breed, graft, and otherwise propagate plants;

To know when and how to spray;

To grow fruits and vegetables successfully.

These and other things will be taught simply, practically, and as thoroughly as the time will permit.

Equipment.

So far as it can be used, the entire agricultural equipment of the College is put at the service of the members of the Winter Course class. The laboratory and classroom equipment, the several large

barns with their equipment of livestock, machines, implements, tools, appliances, and silos; the dairy, with its modern equipment; the horticultural plant; the poultry laboratories, houses, and yards; the libraries, are all used to make the course both interesting and profitable.

Does Such a Course Pay?

All those who have taken this course unite in saying that it has paid them many fold. A thoughtful man has his eyes opened to see so many ways of improving his methods, his soil, his animals, his crops, his orchard, his truck farm, and his poultry that such training as is given in the Winter Course cannot fail to bring not only a handsome economic return, but also a rich return in the greater pleasure taken in his work.

Expenses.

No tuition is charged for the Winter Course. The College cannot offer rooms to students entering this course, but will furnish meals at the dining hall at $2.75 per week. Rooms may be rented either in West Raleigh or in Raleigh at from $2.50 per week up.

Twenty or thirty men can perhaps secure rooms free in the small wooden dormitories. Application should be made for these, if a room in these buildings is desired.

Admission.

No examinations are required for entering the Winter Course, and any person over eighteen years of age may enter with full privileges. The greater part of the instruction consists of lectures and laboratory exercises, and the full time of the students is provided for. Some of the evenings will be devoted to popular lectures and some to student meetings. The regular work of the Winter Course begins January 9 at 8:15 a. m., and all students are urged to be here promptly on that date.

For further information, write to

E. B. OWEN, REGISTRAR,
WEST RALEIGH, N. C.

OUTLINE OF FOUR-WEEKS COURSE.

GENERAL AGRICULTURE.

Professor Newman and Mr. Hodson.

Farm Crops.—First a general survey of the farm-crop situation in the several agricultural divisions of the State will be made. Following this the legumes, small grains, and cover crops will be considered from the viewpoints of profitable production of the crops themselves and their relation to livestock and the conservation of soil fertility. Forage, hay, and pasture crops will be discussed. Rotations for corn, cotton, small grain, and tobacco will be planned and discussed and suggestions made for at least a partial reorganization of the present farm-cropping systems for increasing the farmer's profits, economizing labor, and conserving fertility.

ANIMAL HUSBANDRY.

Professor Gray and Mr. Drain.

Breeds of Livestock.—Lectures on this subject will treat of the characteristics of the different breeds of livestock.

Stock Judging.—This work will be made practical, and it will be done in the stock-judging room, where the students will be taught the use of the score card and the points to be considered in the selection of good animals.

Stock Feeding.—Lectures on this subject will treat of the composition and digestibility of the various home-grown and commercial feeds, methods of calculating rations, and suggestions as to the most economical feeds to use.

DISEASES OF LIVESTOCK.

Doctors Roberts and Handley.

Lectures will first briefly cover elementary anatomy, physiology, hygiene, and sanitation. Comparisons will be made of man and domestic animals. Mounted skeletons of man, horse, and cow will be used to assist in making the subject of anatomy more readily understood. Special emphasis will be laid upon the general causes for disease and the means of avoiding and controlling the same.

AGRICULTURAL BOTANY.

Professor Wolf.

This course will consist of ten lectures. Five of them will treat of the fundamental physiological processes in plants relating to nutrition, growth, and reproduction. The remaining five will treat in a practical way of some important fungous diseases of field, garden, and orchard crops. Ample illustrative material will be used.

SOIL MANAGEMENT.

Professor Sherwin.

Soils.—This work will consist of lectures on moisture, organic matter, acidity, and other factors which determine soil fertility.

Fertilizers.—Lectures will be given on the production, value, and management of farm manures.

Drainage.—Lectures will be given on the common methods and practices of tile drainage and of terracing.

FIELD WORK IN DRAINAGE.

Professor Sherwin and Mr. Joslyn.

Those who desire may substitute field work in drainage for the lecture work outlined above under Soil Management. The field work will include the use of levels for laying off terraces and ditches and the digging of ditches and the laying and covering of tile.

ENTOMOLOGY.

Professor Metcalf.

The aim of this course will be to teach a farmer to recognize his insect friends and enemies. We pay a much greater tax to insects each year than we do to the State and local governments in taxes for several years, and yet there are many farmers who know practically nothing about insects. The farmer should know something about the lives of these interesting animals, and how to control the injurious forms.

The course will be illustrated by specimens, charts, and photographs in order to familiarize the farmer with the principal insects attacking farm crops and fruit trees.

POULTRY RAISING.

Doctor Kaupp.

Since 95 per cent of the poultry produced in this country is grown on the farms, poultry culture in this course will be treated from the farmer's standpoint.

In this connection attention is called to the great and growing demand for poultry products. Whereas a few years ago eggs sold for 10 cents per dozen, 40 and 50 cents is not unusual now at certain times of the year. Formerly young chickens brought from 10 to 25 cents each and hens 25 cents; at present 35 cents is a low price on the local market for young stock, and hens bring 75 cents to $1 each.

The breeds and varieties best suited for the farmer, both for eggs and meat, and how to standardize and stabilize the farm poultry product will have first consideration.

The proper construction of the houses and location of same with reference to convenience and health of the flock will also be discussed. The methods of handling the sitting hen and care and feeding of her brood will be thoroughly discussed and demonstrated.

As the annual loss from bad and improperly handled eggs for the United States is $25,000,000, of which North Carolina bears her share, particular stress will be laid on the production of good marketable eggs.

The reasons why poultry undrawn, dry picked, keeps better and commands the highest price in the best markets of the country will be demonstrated.

Caponizing, one of the easiest operations learned, will have special attention. By this operation thousands of dollars can be saved to the State, improving the quality of the flesh on the many surplus cockerels now marketed yearly.

Incubating and brooding, both natural and artificial, will be thoroughly discussed and made clear.

The College and Station flocks consist of nineteen of the most popular and useful varieties of poultry, embracing both the utility and egg breeds of fowls. They are kept in several types of house, so that the different styles of houses may be seen and compared.

The incubator cellar contains fifteen machines of several different standard makes, including a giant of 1,800-egg capacity, and students have the opportunity of becoming familiar with the best.

To those who may wish to specialize in poultry culture as far as time will admit, opportunity will be given to become familiar with the details of running a poultry plant by being given an incubator and brooder, a pen of fowls to care for, etc.

HORTICULTURE.

Professor Pillsbury and Mr. Hayden.

The course in Horticulture is designed to meet the demand for practical instruction along the lines of plant propagation, fruit growing, and vegetable gardening. Especial consideration will be given to the application of principles and methods to North Carolina conditions.

Plant Propagation is to be presented by means of lectures, demonstrations, and actual practice. The methods used in multiplying plants, such as seed sowing, separation and division, the making of cuttings and layers, and budding and grafting, will be treated in turn.

Fruit Growing is to be considered both from the standpoint of the farmer and that of the fruit grower. It is to be treated by means of lectures and practice in the selection of sites and soils, the laying out of orchards, the planting, pruning, and training of trees, spraying, and the marketing of the fruit.

Vegetable Gardening will treat of the culture of the leading vegetables for both market and home use. Every farm should be supplied with a home garden, and the consideration of this branch of Horticulture is vital to the success of the farmers of the State. Lectures upon the principal crops will be supplemented by demonstrations and practice in the selection of sites and soils, formation of garden plans, in the construction and use of cold-frames and hotbeds, starting early vegetables, transplanting, cultivation, and marketing.

Equipment.—The Department of Horticulture has under its management about thirty acres of land devoted to the culture of all the standard tree, vine, and small fruits and vegetables which it is possible to grow successfully in this climate, as well as other varieties maintained for instructional purposes.

In the fruit plantation, which is very complete, are to be found standard sorts of apples, pears, peaches, plums, cherries, quinces persimmons, pecans, figs, muscadine grapes, "bunch" grapes, raspberries, blackberries, dewberries, and strawberries. There is also a nursery in which both fruit and ornamental plants are grown. This is especially valuable in providing material and opportunity for carrying on various methods of plant propagation, as well as in furnishing stock of all kinds for planting about the grounds.

Quite an extensive area is devoted to vegetable gardening, which is carried on in a large measure upon a commercial basis. This i

possible because of an arrangement with the Department whereby the College dining-room is supplied with fresh vegetables throughout the year. Here all the leading vegetables are grown in season according to the best practice in rotation, fertilization, tillage, and harvesting; and the student is provided with ample materials for study and practice.

The Horticultural grounds are also worthy of study as to the design as a whole, and provide an example of how a home may be attractive by means of lawn, trees, shrubs, and vines.

Additional facilities in the form of a laboratory building and a greenhouse have recently been provided. The laboratory building is a one-story brick structure with a basement to house the heating plant, and covers an area of 25 by 41 feet. Eventually it will be lengthened to 70 feet. The greenhouse is of the type known as "all iron" construction, with concrete walls, and makes as substantial and durable a building of this sort as can be erected. Both of these buildings have been fitted up and are in use. Practice work is emphasized in all courses, and these facilities insure better work than ever before.

ONE-WEEK GRADUATE COURSE IN VETERINARY MEDICINE.

January 8-13, 1917.

Open to graduate veterinarians only. Alterations in the following outline of subjects may be made to suit the wishes of those attending. The subject-matter in each case will be condensed so as to cover the entire field during the week.

Animal Husbandry—Judging, Feeding, and Breeding.—This course is given by the Animal Husbandry Division. The Livestock Judging will embrace the points to be considered in determining the fitness of animals for specific purposes. The Stock Feeding instruction will cover the various feeds available, their composition, and the methods of compounding balanced rations. The Animal Breeding lectures will discuss the selection, the laws of breeding, and the management of breeding animals.

Dairying.—This course is offered by the Dairy Division. The equipment necessary for a dairy, the methods of conducting a dairy business, and the composition of milk will be the subjects of study. Laboratory demonstrations will be given to illustrate methods of testing and standardizing milk and cream, also the scoring of butter.

Parasites and Parasitic Diseases.—Three or more lectures will be given on this subject, taking up the more important internal and external parasites, using for the purpose of demonstration one of the largest private collections of parasites in this country. Symptoms of parasitism, methods of recognition of the parasites, lesions produced, and means of eradication will be thoroughly discussed. Professor KAUPP.

Common Diseases of Poultry.—Three or more lectures will be given on this subject, taking up the more troublesome diseases, both parasitic and bacterial, making actual demonstrations from the poultry and pathology research laboratory, run jointly by the College and the Station. Professor KAUPPP.

Meat and Milk Inspection.—The subject will be covered in the discussion of an outline indicating what inspection for Southern towns should consist of. The work will be demonstrated by visits to the municipally owned abattoir, the city market, and some of the better dairies about Raleigh. Doctor KOONCE.

Anatomy and Dissection.—Condensed outlines of the different anatomical systems will be given, such as of skeleton, including joints,

and muscular, nervous, digestive, circulatory, respiratory, urinary, and genital systems. Abundance of well-injected equine subjects will be available for dissection of all parts, but particular attention will be given those areas involved in special surgery. Professor ROBERTS.

Veterinary Physiology.—The physiology of digestion, nutrition, and reproduction has made much advancement in the past five years. It is, therefore, essential that we understand the latest and the most authenticated scientific findings. Lectures will be given summarizing the essentials of these subjects. Laboratory methods, also, will be used to demonstrate the actions of the digestive fluids, and prepared specimens shown to illustrate, as far as possible, the phenomena of reproduction. The remaining time will then be given to a discussion, in a practical manner, of the respiratory and the circulatory systems. Doctor HANDLEY.

Clinical Diagnosis and Clinics.—The subject-matter will be given in the form of a synopsis of the essential factors concerned in determining the alterations in each of the anatomical systems and regions of the animal body. Demonstrations will be made in the conduct of clinics at the veterinary hospital and by various laboratory and field methods of diagnosis. It is expected to have opportunity to show typical reactions from use of intra-dermal and ophthalmic tuberculin. Doctors ROBERTS, KOONCE, HANDLEY, KAUPP.

Open Discussions on Surgery, Practice, Meat and Milk Inspection, etc. Leaders of each chosen by those attending. Stated periods will be appointed for each of the above subjects on which round-table discussions will be held of the veterinarian's everyday problems.

FRUIT GROWING.

LECTURES AND DEMONSTRATIONS.

January 4, 5, 6, 1917.

The Horticultural Department of the College, aided by the Experiment Station and Extension Service, offers this year a special course on fruit growing in North Carolina.

This course is offered on account of the growing interest for practical information in regard to locating, starting, and managing orchards and the packing of their products.

The following outline will indicate the subjects that will be i
cluded in the instruction and in the demonstrations:

Jan. 4.—Propagation of Fruit Plants.
Varieties of Fruit.
Location and Site Requirements for an Orchard.
Laying Out and Starting an Orchard.
Jan. 5.—Home Orchard Planning.
Principles and Mechanics of Pruning.
Pruning Demonstrations.
Packing Apples in Barrels.
Jan. 6.—Orchard Management.
Orchard Pests.
Spraying Demonstrations.
Packing Apples in Boxes.

II. ENGINEERING COURSES.

a. Four-year Course in Civil Engineering.
b. Four-year Course in Mechanical Engineering.
c. Two-year Course in Mechanic Arts.
d. Four-year Course in Electrical Engineering.
e. Four-year Course in Chemistry.

The Engineering courses give a thorough grounding in such undamental sciences as Mathematics, Physics, and Chemistry, and horough drill in the application of the principles thus learned to ngineering problems. The student is given practice in the use of ngineering instruments and methods, and is encouraged to rely pon his own resources in the solution of problems. Though the ourses are primarily technical and practical, they include subects of general culture throughout all four years.

The Freshman years of all the Engineering Courses are identical nd include a great deal of practice. The student in the different hops learns the use of tools and the handling and manipulation f materials of construction. Instruction is given in working wood nd iron. In the Sophomore year this work is continued in the attern-making shop and in the foundry. Also in the Physical aboratory much attention is paid to the practical value of such nstruction. Here the student is taught the science of measurement nd is trained to observe and work accurately. During these two ears he is also given a thorough training in Mechanical Drafting, kill in which is essential in all lines of engineering work.

Differentiation of the different engineering courses begins in the ophomore year. The practical work here, in the shop, in the field r in the laboratory, directs the student's attention to the specific hases of that branch of the profession he is to follow. In the unior year the study of engineering methods is begun and is conlnued more fully in the Senior year.

Upon the satisfactory completion of these courses the degree of Bachelor of Engineering is conferred. The advanced degrees of Civil Engineer, Electrical Engineer, and Mechanical Engineer may lso be conferred upon graduates of three years standing who have ad responsible charge of important work, upon complying with he College requirements (see page 193).

More detailed descriptions of the different courses follow.

COURSE IN CIVIL ENGINEERING.

The aim of the course in Civil Engineering is to give such training as will enable our young men to take an active part in the work of advancing our State along material lines—developing its water-power, building railroads and public highways, constructing water supply and sewerage systems for our towns, etc. The student is given a large amount of practical work in the field and draughting-room, and acquires a fair degree of efficiency in the use of the various surveying instruments, and in draughting. At the same time it is recognized that a successful engineer requires a well-trained mind—one that reasons logically, accurately, and quickly. Therefore a thorough course is given in all those branches of applied mathematics which are involved in the solution of engineering problems.

The aim has been to make this pre-eminently a technical course; but subjects of general culture are included in order to give the student a broader mental training and better preparation for social and business life.

Civil Engineering Equipment.

There is a complete equipment of all instruments necessary to civil engineering field work. The classrooms, drawing-rooms, and laboratories are in Winston Hall.

II (a). The Four-year Course in Civil Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.*	
	1st Term.	2d Term.
Mechanical Drawing, M. E. 103, 104†	2	2
Woodwork, M. E. 105, 106	2	2
Forge Work, M. E. 108	--	2
Engineering Lectures, M. E. 101	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Physics, 280	4	4
Physical Laboratory, 282	1	1
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Architecture, 220	2	--
Architectural Drawing, 221	2	2
Advanced Algebra, 343	5	--
Trigonometry, 344		
Analytical Geometry, 345	--	5
Descriptive Geometry, M. E. 202	--	2
Physics, 281	2	2
Physical Laboratory, 283	1	1
General Chemistry, 302	3	3
General Chemistry (laboratory), 303	2	2
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Drill, 390	3	3
Military Tactics, 391	1	1
Totals	24	24

*The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Road Building, 212	1	1
Surveying, 202, 206	2	2
Surveying (field work), 207	2	2
Construction, 205	2	--
Topographical Drawing, 203	2	2
Graphic Statics, 201	--	2
Mechanics, 204	3	3
Calculus, 346	5	5
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	23	23
Modern Languages, 370, 373	3	3

Senior Year.

Mechanics of Materials, 215	3	--
Roofs and Bridges, 209	3	--
Bridge Design, 210	--	3
Municipal Engineering, 211	--	2
Surveying (field work), 208	2	--
Water Supply, 218	--	2
Hydraulics, 216	3	--
Railroad Engineering, 206	3	2
Reinforced Concrete, 214	--	3
Astronomy, 213	--	2
Laboratory, 217	--	2
Mechanics, 204	2	--
Journals, 365	3	--
Elect one from the following 3 periods first term, 6 periods second term:		
Classics, 366	--	3
Economics, 367	--	3
Military Drill, 390	3	3
Modern Languages, 371, 374	3	3
Totals	22	22

Subjects of Instruction.

200. Descriptive Geometry, Stereotomy.—Text-book, lectures, problems, and completed drawings. Two periods, second term. Required of Sophomores in Civil Engineering. Mr. POOLE.

201. Graphic Statics.—Determination of stresses in frame structures by graphical methods. Lectures and original problems. Two periods, second term. Required of Juniors in Civil Engineering. Professor MANN.

202. Surveying.—Land surveying, leveling, elements of triangulation, topographical surveying, road location. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN, Assistant Professor POOLE.

203. Topographical Drawing.—Conventional signs, computations, forms of field notes, methods of platting, completed map from field notes. Two periods. Required of Juniors in Civil Engineering. Professor MANN.

204. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of motion, constraining and accelerating forces, dynamics of a rigid body, momentum and impact, work, power, friction, application of principles to various engineering problems. Three periods. Required of Juniors in Civil Engineering. Two periods, first term. Required of Seniors. Professor RIDDICK, Professor MANN, Mr. TUCKER.

205. Construction.—Masonry, foundations, railroads, dams, retaining walls, arches, etc. Baker's *Masonry Construction.* Lectures. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN.

206. Railroad Engineering.—Reconnaissance, preliminary and location surveys, cross sections and compound curves. Two periods, second term. Required of Juniors. Searles's *Field Engineering.* Spirals, Railroad Construction, Estimates, etc. Three periods, first term, two periods, second term. Required of Seniors. Searles's *Railroad Spirals*, Crandall & Barnes's *Railroad Construction.* Professor MANN, Assistant Professor POOLE, Mr. TUCKER.

207. Surveying.—Field work. Use of instruments, compass, level, transit, and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes, and platting. Two periods. Required of Juniors in Civil Engineering. Professor MANN, Assistant Professor POOLE, Mr. TUCKER.

208. Surveying.—Field work. Triangulation and topography, use of sextant and plane table, surveys for sewers, waterworks, etc.

Two periods, first term. Required of Seniors in Civil Engineering. Professor MANN, Assistant Professor POOLE, Mr. TUCKER.

209. Roofs and Bridges.—Determination of stresses in roof and bridge trusses by the analytical method. Merriman's *Roofs and Bridges.* Original problems. Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

210. Bridge Design.—Calculation of stresses, design, specifications, and estimate of cost of a wooden rooftruss and a steel railway bridge. Three periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

211. Municipal Engineering.—Text-books, lectures. Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

212. Road Building.—Text-book on construction of roads, streets, and pavements. Lectures on practical roadmaking in North Carolina. One period. Required of Juniors in Civil Engineering. Professor RIDDICK.

213. Astronomy.—Determination of azimuth, latitude and longitude, and time. Comstock's *Astronomy for Civil Engineers.* Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

214. Reinforced Concrete.—Turneaure & Maurer's *Principles of Reinforced Concrete Construction.* Problems in beams, columns, retaining walls, etc. Three periods, second term. Required of Seniors in Civil Engineering. Professor MANN.

215. Mechanics of Materials.—Study of stresses in beams, columns, shafts, etc. Merriman's *Mechanics of Materials.* Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

216. Hydraulics.—Methods of measuring flow of streams, laws governing flow in pipes and conduits, determination of water-power in streams, testing of hydraulic motors. Text-book, Merriman's *Hydraulics.* Two periods, one term. Required of Seniors in Civil, Mechanical, and Electrical Engineering. Professor RIDDICK, Professor MANN.

217. Laboratory.—Tests of cement and other materials. Hydraulic measurements. Two periods, second term. Required of Seniors in Civil Engineering. Assistant Professor POOLE, Mr. TUCKER.

218. Water Supply.—Investigation of water supplies, methods of treatment, design and construction of filtration and pumping plants, distribution systems. Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

ARCHITECTURE.

220. Architecture.—Building materials, methods of constructing buildings, plans, specifications, bill of materials, estimate of cost, design of buildings. Lectures. Two periods, first term. Required of Sophomores in Civil Engineering. Assistant Professor POOLE.

221. Architectural Drawing.—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Two periods. Required of Sophomores in Civil Engineering. Assistant Professor POOLE.

FOUR-YEAR COURSE IN MECHANICAL ENGINEERING.

The regular four-year course in Mechanical Engineering offers a training in the fundamental principles of design, construction, manufacture, and operation of all classes of standard and special machinery, and their economic application to railroads, steamships, mills, shops, factories, and power plants, as well as in the technical and executive management of the manufacturing and transportation industries. To this end the course of instruction is as broad as is possible to give in a technical school.

The course begins with a thorough training in mathematics, physics, and chemistry as a foundation for the appropriate technical work, which is developed along several parallel lines. Applications of these fundamental sciences to the physical properties of the materials of construction, especially the metals and their practical manipulation, lead through the courses in mechanics, resistance of materials, shop processes, the materials-testing laboratory, drafting and kinematics, to the principles of design, which are fixed by application to the design of machinery for the execution of any kind of process in which machinery is either absolutely essential or more economical than corresponding hand execution of the same process. The principles underlying the performance of machinery are developed by courses in thermodynamics, mechanics, and hydraulics, with experimental laboratory demonstrations. The instruction in the performance, design, and manufacture of machine and power units in the classroom and laboratory, supplemented by visits to power plants and factories, is the basis of the work on the design of plants and mills.

To success in any one of these particular branches or phases of this profession a thorough technical training is absolutely indispensable, for it supplies the broad, general foundation, which must in its turn be supplemented by practical experience and by contact with the special line of work chosen.

II (b). The Four-year Course in Mechanical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Physics, 280	4	4
Military Drill, 390	3	3
Composition and Rhetoric, 360	3	--
Algebra, 340	5	--
Engineering Lectures, M. E. 101	2	--
Geometry, 341	--	5
American Literature, 361	--	3
Mechanical Drawing, M. E. 103, 104	2	2
Wood Shop Work, M. E. 105, 106	2	2
Physical Laboratory, 282	1	1
Forge Shop Work, M. E. 108	--	2
Totals	22	22

Sophomore Year.

Physics, 281	2	2
General Chemistry, 302	3	3
Advanced Rhetoric, 362 Public Speaking, 363	3	3
Military Drill, 390	3	3
Military Tactics, 391	1	1
Advanced Algebra, 343 Trigonometry, 344	5	--
Analytical Geometry, 345	--	5
Descriptive Geometry, M. E. 202	--	2
Physical Laboratory, 283	1	1
General Chemistry (Laboratory), 303	2	2
Foundry Work, M. E. 203	2	--
Pattern Making, M. E. 205	2	--
Mechanical Drawing, M. E. 206	--	2
Totals	24	24

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Heat Engines, M. E. 301, 302	3	3
Mechanics, M. E. 303, 304	2	2
Electrical Engineering, 285	2	2
Calculus, 346	5	5
English Literature, 364	3	3
Military Drill, 390	3	3
Mechanism, M. E. 305	2	--
Machine Design, M. E. 306	--	2
Machine Shop, M. E. 307, 308	1	1
Mechanical Engineering Laboratory, M. E. 309, 310	1	1
Electrical Laboratory, 290	1	1
Totals	23	23
Optional:		
Modern Languages, 370 or 373	3	3

Senior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Power Plants, M. E. 401, 402	3	2
Gas Engines, M. E. 403	3	--
Mechanics, M. E. 405	3	--
Mechanics of Materials, M. E. 406	--	2
Industrial Engineering, M. E. 408	--	2
Heating, Ventilation, and Refrigeration, M. E. 410	--	3
Hydraulics, 216	--	2
Machine Design, M. E. 411	3	--
Gas Engine or Turbine Design, M. E. 412, 414	--	2
Machine Shop Work, M. E. 415, 416	4	2
Mechanical Engineering Laboratory, M. E. 417, 418	2	2
Power Plant Design, M. E. 420	--	2
Elect one of the following subjects:		
Military Drill	3	3
Modern Languages, 371 or 372	3	3
Journals, 365	3	--
Classics, 366	--	3
Economics, 367	--	3
Machine Shop, M. E. 421, 422	2	2
Machine Design, M. E. 423, 424	2	2
	21	22

Mechanical Engineering Equipment.

Buildings.—The drawing rooms and recitation rooms are in the Mechanical Building; while the forge shop, foundry, wood shop, dry kiln, machine shop, and mechanical laboratory are in the new shop building, which was completed in 1915. This building is of brick and has a floor space of 26,350 square feet. It contains the machinery from the old shops as well as many new machines. Each shop contains a demonstration lecture-room of which use is made for recitation work. The Power Plant is also utilized for experimental engineering.

Drawing Rooms.—The drawing rooms are well lighted, heated, and ventilated, and are spacious. They are equipped with drawing tables, board and filing cabinets, models of valves, pumps, machine parts, etc., etc.

Forge Shop.—This is a well lighted and ventilated room 35 x 72 feet. It is equipped with forty anvils and twenty double forges of the down-draft type, each having individual tools, thus accommodating forty students at one time. The shop is equipped with a down-draft exhaust system operated by a 120-inch Sturtevant exhaust fan for removing the smoke and gases from the fires; one emery grinding machine, one 48-inch grinding stone, one drill press, one standard gas furnace of the combination type with connections to an electric pyrometer and complete equipment for hardening, tempering, carbonizing, and annealing; vises, swage blocks, and surface plates. The shop also has a tool-room, office, and a room with elevated seats, and an instructor's forge, with equipment for demonstrating and lecturing.

The Foundry.—This will accommodate about thirty-five students at one time. The main floor is 35 x 72 feet, with five stock-rooms underneath. There is also an office, with a pattern-room and lecture-room. The equipment consists of a Northern Engineering Works 36-inch cupola, one crucible brass furnace, an Arcade Rotary Sand Sifter, one core machine, one core oven, four molding machines, and all necessary tools for bench and floor work.

Wood Shop.—This room is 50 x 118 feet and has all the conveniences of a modern shop. It contains the following machines and equipment: one combination bench and lathe for demonstrating and lecturing; elevated seats to accommodate about forty students; twenty double carpenters' benches, with all necessary tools for each bench; thirty 12-inch turning lathes, each lathe being fully equipped with turning tools; a rip saw; a cut-off saw with foot feed, and a combination saw with dado heads and other attachments; two 24-inch surface planers; a 12-inch and a 6-inch jointer; a universal boring machine; a 6½-inch tenoning machine; a 34-inch band saw; an iron-frame self-contained jig saw; a shaper or edge-molding machine with a complete set of molding cutters, saws, etc.; a chain mortiser; a hollow chisel mortiser; belt, drum, and disc sanders; a planer-knife grinder; a 38-inch grindstone; a wood-trimmer; a panel-raising machine; a 4-inch Fay & Egan molder; a Willey electric-driven emery wheel; an adjustable miter box; a steam glue-heater; a large assortment of screw and bar clamps, both iron and wood. There are also up-to-date tool and stock rooms connected with this shop.

Machine Shop.—This well equipped shop is 50 by 100 feet, and contains many new machines. It has a cement floor and large windows, which make it an ideal room for machine work. There are the following machines: A 16-inch Davis & Egan lathe, with 10-foot bed; a 14-inch Windsor lathe with 5-foot bed; a 14-inch Putnam lathe with 4-foot bed; a 14-inch Champion lathe with 6-foot bed; a 14-inch Flather lathe with a 6-foot bed; three 14-inch lathes with 6-foot beds (built in College shops by students); a 26-inch by 44-inch by 12-foot bed McCabe double spindle lathe; a 14-inch Champion lathe; a 12-inch Seneca Falls lathe; a 16-inch Gould & Eberhard shaper; an 18-inch Prentiss shaper; a 24-inch upright Bickford drill press; a 32-inch American drill press; a Brown & Sharpe Universal milling machine, with all attachments; a 20-inch by 5-foot Pease planer; one large and one small emery tool grinding machine; a Greenwich arbor press; an electric center grinder; a Whiton centering machine, and a twist drill grinder. The machines have full equipment of chucks, rests and tools. The benches are well provided with vises.

Mechanical Laboratory.—The laboratory is located in a room 45 by 95 feet, and is well equipped with the necessary apparatus for performing commercial tests on the various mechanical engineering problems.

For general laboratory there are various measuring instruments, thermometers, pyrometers, steam engine indicators, planimeters, tachometers, pressure and vacuum gages, a Crosby gage tester, steam calorimeters, both throttling and separating, an Emerson fuel calorimeter for testing coal and oils, an apparatus for testing oil for flash-point, burning-point, and viscosity, apparatus for flue-gas analysis, both indicating and recording, and apparatus rigged for making calibration tests on thermometers, indicator springs, and steam gages.

For the work in steam engineering there are the following: A 40-horsepower Skinner automatic engine, to which is connected a Wheeler surface condenser with a Blake air pump; a 25-horsepower steam engine, a 10-horsepower engine, a 10-horsepower De Laval steam turbine, and apparatus arranged for making tests on injectors, pumps, flow of fluids through orifices and nozzles. Besides the above, which are used only for experimental purposes, the College Power Plant, with a 100-horsepower Skinner automatic steam engine, a 135-horsepower De Laval steam turbine, with all auxiliaries, as well as the boiler equipment, consisting of two 200-horsepower Atlas and two 75-horsepower Babcock & Wilcox water tube boilers, are all available for tests.

For making efficiency and economy tests on gasolene and oil engines, the following equipment is available: One 11-horsepower Foos gasolene engine; one 6-horsepower Bessemer oil engine; one 2-horsepower McVicker gasolene engine; one 3-horsepower 2-cycle Detroit oil engine; one 16-horsepower Ford automobile engine; a 1-horsepower engine, built in shops, and a 5-horsepower De La Vergne oil engine. To this collection it is hoped to add one or two more oil engines in the near future.

For the course in testing of materials the following are available: A 50,000-pound Riehle automatic testing machine, arranged for tensional, compression, and transverse tests; a 15,000-pound Olsen testing machine for small specimens, and necessary auxiliary apparatus, such as micrometers, extensometers, etc., for obtaining results of the various tests.

Subjects of Instruction.

Freshman Year.

101. Engineering Lectures.—First term. A series of lectures intended to acquaint students with general engineering terms and principles; also with materials used in engineering work, such as lumber, iron, steel, copper, brass, cement, coal, and other materials. Lantern slides are used wherever possible. Two periods. Required of Freshmen in Engineering and Textile Industry. Professor Satterfield and Assistants.

103. Mechanical Drawing.—First term. Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawings from working sketches of machine details; tracing; blue-printing; elements of descriptive geometry; cylinders; cones; prisms; intersecting and development; miscellaneous problems. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. Briggs.

104. Mechanical Drawing.—Second term. Continuation of 103. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. Briggs.

Note.—Each student will be required to furnish, at his own expense, the following outfit. To insure uniformity in grade of instruments and other supplies, the Department keeps for sale, practically at cost, the articles named below. These may be purchased elsewhere, but must be approved by the Department. Estimated cost of outfit, $12 to $15.

Text-book.
Drawing board, 22x32 inches.
T-square, 30 inches.
60° triangle, 9 inches, transparent.
45° triangle, 7 inches, transparent.
12-inch triangular architect's scale.
4H pencil. H or F pencil.
Erasers for ink and pencil.
Penholder with five points.
Pencil-sharpener.
Instrument set consisting of:
6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen.

105. Wood Shop Work.—First term. Elementary instruction in bench work, involving the use of ordinary hand tools, such as planes, saws, squares, chisels, etc. All exercises are made from blue-prints and sketches. This work leads up largely to cabinet lines, such as bookcases, tables, drawing boards, and similar things. Special attention is given to making cabinets, tables, and other articles for the different laboratories, and also to a general line of repairing for the College.

The student also gets a good working knowledge of woodworking machinery, such as hand saw, jig saw, rip saw, planers, boring machines, jointers, and other machines.

They also get good experience in hand finishing, scraping, gluing, sand-papering, staining, and varnishing. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. WHEELER, Mr. MARTIN.

106. Wood Shop Work.—Second term. Work similar to that outlined under 105. During the latter half of the spring term the time is devoted principally to wood-turning, which includes turning between centers, face plate, chuck work, polishing, and finishing. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. WHEELER, Mr. MARTIN.

108. Forge Shop Work.—Second term. Treatment of iron and steel, the uses of punches, swages, fullers, and set-hammers, both hand and machine tools. Exercises in drawing, upsetting, forming; scarf, jump, butt, and cleft welding; making of forge and machine-shop tools from blue-prints; hardening and tempering, annealing, carbonizing, and case hardening; selection of tool steels. Special

work on equipment and repairs about the College shops and laboratories. Two periods, recitation and exercises. Required of Freshmen in Engineering and Textile Industry. Mr. NICHOLS.

Sophomore Year.

202. Descriptive Geometry.—Second term. Instruction in method of representing on a flat surface geometrical magnitudes, points, lines, surfaces, and solids, and the solution of problems relating to them. A practice period follows each hour of instruction. Prerequisite, Mechanical Drawing 103 and 104. Two periods. Required of Sophomore Mechanical and Electrical Engineers. Professor SATTERFIELD and Mr. RICHARDSON.

203. Foundry Work.—First term. Recitations and exercises in foundry work, including selection and working condition of sand; use and care of tools and machines; floor, bench, machine molding, and core-making; mixing cast-iron and alloys; management of cupola and brass furnace in iron and brass melting; making castings for special machines, general repairs, and machine-shop work; relation and merits of a variety of tools and materials used in foundry practice. Two periods. Required of Sophomores in Mechanical and Electrical Engineering. Mr. NICHOLS.

205. Pattern Making.—A study of pattern-making in its relation to molding; the practical construction of patterns to prevent warping and twisting; the making of special patterns, also patterns for different machines, such as drill presses, lathes, jointers, etc.; cores and core-boxes; introducing draft, shrinkage, finish, and the appliances and usage of modern pattern work. Required of Sophomores in Mechanical and Electrical Engineering. Two periods, first term. Prerequisite, Woodwork 105 and 106. Mr. WHEELER, Mr. NICHOLS.

206. Mechanical Drawing.—Second term. Making drawings and calculations setting forth the general principles of Descriptive Geometry. The design of cams to give specified motions, and problems in elementary machine design. Two periods. Required of Sophomores in Mechanical and Electrical Engineering. Prerequisite, Mechanical Drawing 103 and 104. Mr. RICHARDSON.

Junior Year.

301. Heat Engines.—First term. A study of elementary thermodynamics, properties of steam, calorimeters and mechanical mixtures, combustion and fuels, boilers and boiler auxiliaries. Three periods. Required of Junior Mechanical Engineers. Professor SATTERFIELD.

302. Heat Engines.—Second term. A study of steam engines, steam turbines, and internal combustion engines—types and details, valve gears and governors; calculations for testing; economy of installation and operation. Three periods. Required of Junior Mechanical Engineers. Professor SATTERFIELD.

303. Mechanics.—First term. Nature and measurements of the various units entering into the study of Mechanics. Statics, as applied to forces acting at a single point and on a rigid body and involving the use of the triangle of forces, the X-component and Y-component and Moment principles. The application of the principles of Statics as applied to the solving of problems in simple mechanics. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Physics 280, Algebra 340, and Trigonometry 344. Assistant Professor VAUGHAN.

304. Mechanics.—Second term. Graphical statics and its application for the purpose of finding reaction and stresses in members of framed structures. Kinematics, which treats of the motion of bodies without reference to the forces producing the motion or masses of the moving bodies. The solving for velocity and acceleration of bodies when in rectilinear and curvilinear motion. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Prerequisite M. E. 303. Assistant Professor VAUGHAN.

305. Mechanism.—First term. An analysis of the motions and forms of machines. Among the subjects discussed are instantaneous centers, kinematic chains, velocity diagrams, parallel and straight line motions, cams, gearing, worms and worm wheels, belting and intermittent motions. The solution of a large number of practical problems by both graphical and mathematical methods is required. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, M. E. 202 and M. E. 206. Associate Professor ELLIS.

306. Machine Design.—Second term. A study of materials used in machine construction; analysis of stresses in machine parts; design of machine parts, considering them as compression, tension, or torsion members; modification of the above to suit practice and for the sake of general appearance. Design of simple machines, such as shears, punches, power pumps, etc., all calculations to be made in standard form and handed in with the assigned problem. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, M. E. 202 and M. E. 302. Associate Professor ELLIS.

307. Machine Shop Work.—First term. Bench work, exercises in chipping and filing. One period. Required of Junior Mechanical and Electrical Engineers. Mr. PARK.

308. Machine Shop Work.—Second term. Machine work. Exercises in lathe work, boring, reaming, drilling, planing, milling and shaping. One period. Required of Junior Mechanical and Electrical Engineers. Mr. PARK.

309. Mechanical Engineering Laboratory.—First term. This course will parallel M. E. 301 and 302 and involve the performing of simple tests such as determining the temperature-pressure curve, getting resulting temperatures in mechanical mixtures, etc. Practice in the use of steam calorimeters and fuel calorimeters for determining the heating value of fuels. The operation of instruments for determining the products of combustion in a furnace. One period. Required of Juniors in Mechanical Engineering. Prerequisite, Physics 281. Assistant Professor VAUGHAN, Mr. WHEELER.

310. Mechanical Engineering Laboratory.—Second term. Simple calibration work on steam gages, vacuum gages, indicator springs, etc. Practice in use of indicators and planimeters for the purpose of obtaining indicated horsepower of steam engines and gas engines. Study and operation of lubricators. Testing of lubricants for flash-point, burning-point, and viscosity. One period. Required of Juniors in Mechanical Engineering. Prerequisite, M. E. 309. Assistant Professor VAUGHAN, Mr. WHEELER.

325. Heat Engines.—First term. Nature and measurement of the units of heat, work, and power as used in steam engineering. A study of the properties of steam; use of the "Steam-Tables" for solving problems. The theory of steam calorimeters, mechanical mixtures, and combustion of fuels. The application of the above to boilers for the purpose of determining rating, capacity, and efficiency. The function of the various boiler auxiliaries is critically examined. Two periods. Required of Juniors in Electrical and Textile Engineering. Prerequisites, Physics 281, Algebra 343. Assistant Professor VAUGHAN.

326. Heat Engines.—Second term. The study of elementary thermodynamics as applied to the steam and gas engine cycles, the steam engine, including classification and details, valves, valve gears, and governors. Determination of indicated and brake horsepowers and heat efficiency from given conditions. Steam turbines and gas engines will be studied briefly. Two periods. Required of Juniors in Electrical and Textile Engineering. Prerequisite, M. E. 325. Assistant Professor VAUGHAN.

Senior Year.

401. Power Plants.—First term. A study of fuels and combustion; steam boilers; smoke prevention; superheaters and superheated steam; coal and ash handling apparatus; mechanical draft. A comparative study of steam engines; efficiencies; heat losses; influence of condensing and superheating; costs. Three periods. Required of Mechanical Engineers. Professor SATTERFIELD.

402. Power Plants.—Second term. A study of the elementary theory, efficiency, and economy of the steam turbine; types, functions, and operation of condensers, feed-water heaters and purifiers, pumps, separators, traps, and drains. A study of piping and pipe fittings. Attention is also given to cost of power and to specifications for power-plant equipment. Two periods. Required of Mechanical Engineers. Assistant Professor VAUGHAN.

403. Gas Engines.—First term. Thermodynamics of the gas engine, theoretical comparisons of various types of internal combustion engines. Combustion, including combining weights and volumes, heating value, air required, etc. Gas engine fuels; solid, liquid, and gas. Gas producers, carbureters, and vaporizers. The fuel mixture, pressure, and temperature resulting from combustion. Modern types of internal combustion engines; auxiliaries, including ignition, starting apparatus, and mufflers; regulation, efficiency, and economy. Three periods, first term. Required of Seniors in Mechanical Engineering. Prerequisites, Heat Engines, M. E. 301 and 302, and Mechanics, M. E. 303 and 304. Assistant Professor VAUGHAN.

405. Mechanics.—First term. A study of the kinetics of a particle and the mass center of a rigid body, with the equations of motion for translation, moment of inertia, work, energy, principle of work and its application to mechanics. Three periods. Required of Seniors in Mechanical and Electrical Engineering. Associate Professor ELLIS.

406. Mechanics of Materials.—Second term. A study of the effects of loads and forces in engineering structures by use of the stress-strain diagram. Determination of ultimate stress and elastic limit of materials, with investigation for maximum and minimum bending moment and shear. Torsion and its application to shafting, with theories as to elastic limit and failure. Two periods. Required of Seniors in Mechanical and Electrical Engineering. Prerequisites, M. E. 303 and M. E. 405. Associate Professor ELLIS.

408. Industrial Engineering.—Second term. In this course a study is made of the origin of the Industrial Systems; principles of industrial organization; forms of industrial ownership; nature and distribution of expense; the primary wage systems; philosophies of

management; and the buying, handling, and use of materials. Two periods. Required of Mechanical Engineers. Professor SATTERFIELD.

410. Heating, Ventilation, and Refrigeration.—First term. This subject treats of the various methods of heating, such as by open fires, hot air, steam, and hot water; of the proper ventilation of all types of buildings; of the various types of ice-making and refrigerating machinery, and their installation, care, and management; and of the cost of heating and cooling. Three periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

411. Machine Design.—First term. Advanced machine design based on the thermal and mechanical problems involved in the design of a steam engine for power, economy, and regulation. The students are given the requirements of the engine—such as speed, regulation, and economical point of cut-off for required horsepower—and are required to make calculations and detail drawings for problems assigned. Required of Seniors in Mechanical Engineering. Prerequisites, M. E. 305, 303 and 304, 302 and 301. Associate Professor ELLIS.

412. Gas Engine Design.—Second term. The practical applications of the principles discussed in M. E. 403 combined with the rational and empiric methods of design as developed in general practice. Two periods. Either this or 414 is to be elected by Seniors in Mechanical Engineering. Prerequisite, M. E. 403. Associate Professor ELLIS.

414. Turbine Design.—Second term. The calculations for the most economical water rate are made and are based on the general principles related to the flow of steam through nozzles with the resulting action upon turbine buckets, including the losses due to friction, rotation, etc. The estimates for the sizes of the nozzles, shaft bearings, etc., with the shape of the buckets to suit the velocity diagrams, are made. The detail and assembly drawings of the turbine are also made. Two periods, spring term. Either this or 412 is to be elected by Seniors in Mechanical Engineering. Prerequisites, M. E. 401 and M. E. 411.

415. Machine Shop Work.—First term. Making the parts of some machine, or of an engine. Making tools, such as taps and reamers. Two periods. Required of Seniors in Mechanical Engineering. Mr. PARK.

416. Machine Shop Work.—Second term. Laying out work. Duplicate and interchangeable parts. Working to standard gages. Two periods. Required of Seniors in Mechanical Engineering. Mr. PARK.

417. Mechanical Engineering Laboratory.—First term. The testing of simple machines for efficiency under various conditions of loading. Efficiency and economy tests on injectors, pumps, steam engines, and steam turbines. Boiler tests for determining horsepower and efficiency. In addition to the testing work, advanced heat problem work will be given, dealing with the various heat cycles studied in the laboratory. Two periods. Required of Seniors in Mechanical Engineering. Prerequisites, M. E. 301 and 302 and M. E. 309 and 310. Assistant Professor VAUGHAN, Mr. WHEELER.

418. Mechanical Engineering Laboratory.—Second term. The determination of efficiency and economy of gas, gasolene, and oil engines. Tests for refrigerating effect in a cold-storage plant. The testing of materials of construction for strength in compression and tension; determination of elastic limit, modulus of elasticity, etc. A continuation of the heat problem work from M. E. 417. Two periods. Required of Seniors in Mechanical Engineering. Prerequisites, M. E. 417, M. E. 403, M. E. 405. Assistant Professor VAUGHAN, Mr. WHEELER.

420. Power Plant Design.—Second term. A continuation of M. E. 401, consisting of a study of the selection, location, and proportioning of the essential details of steam power plants, such as engines, boilers, pumps, piping, condensers, feed-water heaters, chimneys, etc. The course consists of the study of references, lectures on the subject, and the drawing of the plans of plants. Two periods. Required of Seniors in Mechanical Engineering. Prerequisite, M. E. 411. Associate Professor ELLIS.

421. Machine Shop Work.—First term. The making and assembling of some complete machine, in so far as is possible. Two periods. Elective for Senior Mechanical Engineers. Mr. PARK.

422. Machine Shop Work.—Second term. Continuation of 421. Two periods. Elective for Senior Mechanical Engineers. Mr. PARK.

423. Machine Design.—First term. Advanced work in design, exact subject to be selected by student and professor in charge. Two periods. Elective for Senior Mechanical Engineers. Associate Professor ELLIS.

424. Machine Design.—Second term. Continuation of 423. Two periods. Elective for Senior Mechanical Engineers. Associate Professor ELLIS.

431. Mechanical Engineering Laboratory.—First term. Calibration of the instruments used in performing tests on mechanical engineering problems. Practice in the use of calorimeters, both steam and fuel; indicators, planimeters, etc. Testing of lubricants for flash-point, burning-point, and viscosity. Checking the formulas used in

determining the flow of fluids through orifices and nozzles. One period; required of Seniors in Electrical Engineering. Prerequisites, M. E. 325 and 326, and M. E. 303 and 304. Assistant Professor VAUGHAN, Mr. WHEELER.

432. Mechanical Engineering Laboratory.—Second term. Efficiency tests of pumps, injectors, boilers, steam engines, steam turbines, and gasolene and oil engines. Testing of materials for strength in compression and tension; determination of elastic limit and modulus of elasticity. One period. Required of Seniors in Electrical Engineering. Prerequisite, M. E. 431. Assistant Professor VAUGHAN, Mr. WHEELER.

MECHANIC ARTS.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following two-year course in Mechanic Arts is offered.

This course does not lead to graduation, and it is not in any sense intended as a preparatory course for the regular four-year classes. It is designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen sphere of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take this course will be carefully drilled in the handicraft of their art, and in the application of elementary science to the shop, drawing-room, and power plant.

II (c). TWO-YEAR COURSE IN MECHANIC ARTS.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mechanical Drawing	3	3
Woodwork	2	2
Forge Work	--	2
Engineering Lectures	2	--
Mechanical Technology	--	2
Physics	2	2
Algebra	5	5
Plane Geometry	--	
English	5	5
Military Drill	3	3
Totals	22	24

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Machine Drawing	3	3
Machine-shop Work	3	3
Power Machinery	3	3
Elementary Mechanics	--	2
Gas Engine Laboratory	--	1
Machine Shop or Drawing	--	2
Pattern Work	2	--
Foundry	2	--
Algebra	5	--
Geometry	--	5
English	3	3
Drill	3	3
Totals	24	24

Subjects of Instruction.

First Year.

Mechanical Drawing.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawing from working sketches of machine details; tracing; blue-printing; elements of Descriptive Geometry; cylinders; cones; prisms; intersections and developments; miscellaneous problems. Three periods. Mr. Richardson.

Note.—Each student will be required to furnish at his own expense the following outfit. To insure uniformity in grade of instruments and other supplies, the department keeps for sale, at practically cost, the articles named below. These may be purchased elsewhere, but must be approved by the department. Estimated cost of outfit, $12 to $15.

Text-book.
Drawing board 21 by 30 inches.
T-square 30 inches.
60° triangle 9 inches, transparent.
45° triangle 7 inches, transparent.
12-inch triangular architect's scale.

Irregular curve.
4H pencil. H or F pencil.
Erasers for ink and pencil.
Penholder with five points.
Pencil sharpener.

Instrument set consisting of:
6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen, 4½-inch ruling pen.

Wood Shop Work.—First term. Elementary instruction in bench work, involving the use of ordinary hand tools, such as planes, saws, squares, chisels, etc. All exercises are made from blue-prints and sketches. This work leads up largely to cabinet lines, such as book-cases, tables, drawing boards, and similar things. Special attention is given to making cabinets, tables, and other articles for the different laboratories, and also to a general line of repairing for the College. The students also get a good working knowledge of wood-working machinery, such as hand saw, jig saw, rip saw, planers, boring machines, jointers, and other machines. They also get good experience in hand finishing, scraping, gluing, sand-papering, staining, and varnishing. Two periods. Mr. WHEELER, Mr. MARTIN.

Wood Shop Work.—Second term. Work similar to that outlined under 105. During the latter half of the spring term the time is devoted principally to wood turning, which includes turning between centers, face plate, chuck work, polishing and finishing. Two periods. Mr. WHEELER, Mr. MARTIN.

Forge Shop Work.—Second term. Treatment of iron and steel, the uses of punches, swages, fullers, and set-hammers, both hand and machine tools. Exercises in drawing, upsetting, forming; scarf, jump, butt, and cleft welding; making of forge and machine-shop tools from blue-prints; hardening and tempering, annealing, carbonizing, and case hardening; selection of tool steels. Special work on equipment and repairs about the College shops and laboratories. Two periods, recitation and exercises. Mr. NICHOLS.

Algebra.—Wells's *New Higher Algebra.* A thorough treatment of Elementary Algebra, embracing the subjects of simple and simultaneous equations, involution, evolution, theory of exponents and radicals, quadratic equations, ratio and proportion, binomial theorem, and progression. Five periods, first term. Assistant Professor HARRELSON, Mr. JETER, Mr. SMITH.

Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry*. A complete course in Plane Geometry, including numerous original exercises. Five periods, second term. Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

Engineering Lectures.—First term. A series of lectures intended to acquaint students with general engineering terms and principles; also with materials used in engineering work, such as lumber, iron, steel, copper, brass, cement, coal, and other materials. Lantern slides are used wherever possible. Two periods. Professor SATTERFIELD and Assistants.

Mechanical Technology.—Deals with building materials, pulleys, belts, pattern-making, foundry, machine-shop tools and operation, gear proportions, etc. Two periods, second term. Mr. PARK.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Five hours a week. Required of first-year students. Mr. WEBBER.

Physics.—A general science course is given under the head of Physics. The course embraces the historical development of the scientific ideas of to-day, with special emphasis on the development of practical machines and engines. Practical determinations of densities, strengths of materials, measurements of heat and electricity, and everyday determinations are made before the class. Machines are analyzed and the relations of force and energy are worked out. Practical heating and the wiring of electric circuits are also studied. The purpose of the course to be both educative and practical is carefully followed. Required of First-year students. Two periods. Mr. MARTIN.

Second Year.

Machine Drawing.—Sketching and drawing of machine parts and machines. Detail working drawings. Tracing and blue-printing. Three periods. Prerequisite, first year Mechanical Drawing. Associate Professor ELLIS.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper-work. Three periods. Mr. PARK.

Power Machinery.—Descriptive study of the machinery of steam power plants, engines, boilers, condensers, pumps, steam turbines, piping, care and management, study of gas and oil engines. Combustion of fuels. Indicators; indicated, brake, and boiler horsepower problems. Three periods. Mr. PARK.

Elementary Mechanics.—This subject is intended to treat the elementary mechanics problems which arise in connection with machine shop and drafting room practice. Two periods, second term. Mr. NICHOLS.

Gas Engine Laboratory.—In connection with a study of the principles of the internal combustion engine in power machinery, this laboratory course is offered for the purpose of acquainting the student with the actual handling of such engines. Practice is given on the various types of gasolene, kerosene, and oil engines. One period, second term. Assistant Professor VAUGHAN.

Pattern-making.—A study of pattern-making in its relation to molding; the practical construction of patterns to prevent warping and twisting; the making of special patterns, also patterns for different machines, such as drill presses, lathes, jointers, etc.; cores and core-boxes; introducing draft, shrinkage, finish, and the appliances and usage of modern pattern work. Two periods, first term. Prerequisite, first term work. Mr. WHEELER, Mr. NICHOLS.

Foundry Work.—Recitations and exercises in foundry work, including selection and working condition of sand; use and care of tools and machines; floor, bench, machine molding and core-making; mixing cast-iron and alloys. Management of cupola and brass furnace in iron and brass melting; making castings for special machines, general repairs, and machine-shop work; relation and merits of a variety of tools and materials used in foundry practice. Two periods, first term. Mr. NICHOLS.

Algebra.—Wells's *New Higher Algebra.* Begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Prerequisite, first-year Algebra. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Prerequisite, first-year Mathematics. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

English Composition and Rhetoric.—After a review of grammatical principles, special attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Three periods. Required of second-year students. Assistant Professor PRATT, Mr. WEBBER.

FOUR-YEAR COURSE IN ELECTRICAL ENGINEERING.

The four-year course in Electrical Engineering is planned for those who wish a thorough practical preparation for following this profession. Only the most thorough training in the fundamental laws and principles of electricity and magnetism will suffice as a preparation for this branch of engineering in which the art is advancing so rapidly. This training is given by a careful study of text-books and coördinated work in the various laboratories. The department, as will be seen from the equipment described below, is well supplied with dynamos, motors, transformers, and other electrical machines, and with testing instruments and apparatus of all descriptions.

Electrical Engineering Equipment.

The course in Electrical Engineering is accompanied by work in the laboratory and the designing-room. The department occupies the western portions of the basement and of the first floor of Winston Hall. On the first floor are the classrooms, offices, library, drafting-room, and instrument laboratory. The classrooms are well equipped for demonstrating the principles studied in the text-books. The designing-room is suitably furnished for its purpose, and the instrument laboratory is supplied with standardizing apparatus and instruments, provided for quickly determining the accuracy of all the apparatus used in actual measurements and also for advanced measurements in electricity and magnetism. This room is well supplied with power, current from single-, two- and three-phase sources being available, as well as direct current from the power-house and storage batteries.

In the basement are located the dynamo laboratory, the photometric laboratory, instrument room, the department's repair shop, and rooms for high-tension apparatus, storage battery, and stores.

The dynamo laboratory is a room 90 x 30 feet. Its equipment consists of direct and alternating current dynamos and motors of practically all types and ranging in size from one to thirty-seven kilowatts, the aggregate capacity being about two hundred kilowatts in machines and seventy-five kilowatts in transformers. Power is supplied to the laboratory by means of three independent circuits running from the College power-house. A full complement of ammeters, voltmeters, wattmeters, phasemeters, tachometers, rheo-

stats, condensers, inductances, and other apparatus used in the study of electrical machines is provided. The equipment is arranged so that power is conveniently supplied to a number of independent stations, at each of which a group of students can conduct an experiment without being affected by the work of other groups.

Power-house.

The College power-house is also available for student instruction. It is a brick building containing an excellent equipment of modern type. This consists of one seventy-five kilowatt, six-hundred volt, three-phase revolving field alternator directly connected to a high-speed engine; two fifty-kilowatt, three-hundred volt, three-phase revolving field alternators, driven by a DeLaval steam turbine, with direct-driven exciter; a ten-kilowatt, direct-connected, direct current generator; a motor-generator exciter set; and a completely equipped switchboard.

The city of Raleigh is unusually well situated for students of Electrical Engineering. The local power company has a fine modernized steam turbine-driven plant which operates in conjunction with the water-power plant at Buckhorn Falls, on the Cape Fear River, from which point the power is transmitted at sixty thousand volts. This company also owns the large plant at Blewetts Falls, from which power is transmitted at one hundred and ten thousand volts. This line crosses the College property, and has an outdoor transformer and meter station located within easy reach.

Library.

This department has a small but growing library and takes a number of the leading electrical journals, all of which are at all times available for the students' use.

PHYSICS.

Physics is the fundamental subject at the base of all engineering courses. It considers the absolute properties of the materials with which the engineer has to deal; it analyzes the forces acting on these materials; and it studies the transformation of energies which are utilized in all engineering work. A thorough grounding in Physics is for this reason insisted on in all engineering courses. To this end every possible facility is afforded for thorough instruction in Physics. The work embraces attendance on demonstrated lectures, recitations, and lectures and text-book assignments, and practical

determinations of physical quantities in the laboratories. Once or twice each week each class in Physics is given a demonstrated lecture in which the actual laws and operations studied are worked out before the class. These lectures are also designed to give a historical background to the subject, wherein the student may get not only an appreciation of the struggle through which man has come to an orderly interpretation of his environment, but an enthusiasm for investigation and research. The first year's work is more general, with emphasis on the fundamental laws behind all interaction of forces and energy transformations. In the second year the general laws are amplified and the broader applications to engineering investigated.

Equipment.

The William Kearny Carr Physical Laboratory occupies the ground floor of Holladay Hall. It embraces two lecture-rooms, four laboratories, an apparatus room, and a repair shop. The main lecture room is equipped with a large lecture table having connections for water, gas, electricity, and a stereopticon. The first year's work is carried on in a large laboratory well equipped so that each student performs the set of thirty-two standard measurements of physical quantities. The second year's work is performed in two laboratories, in one of which measurements in mechanics, heat, and electricity are made, while the other is used for measurements in light and optics. The Department has its own shop and employs its own mechanic for constructing and repairing apparatus. The collection of apparatus for demonstrated lectures is being continually added to and is at present large and excellently adapted for this purpose.

The William Kearny Carr Research Laboratory.

Through the generous bequest of the late William Kearny Carr the Department has established an excellent research laboratory for graduate work. Mr. Carr's private laboratory was thoroughly equipped with the finest apparatus for investigations in the subjects of light, sound, and electrical radiation. This apparatus has now been placed in a large, well lighted room on the ground floor, with spaces provided for private research. Few institutions can offer such facilities for advanced study of polarized light and sound as are afforded by the equipment of the Carr Research Laboratory. Advanced work for students and instructors is offered, and research work is assigned to those desiring to take the degree of Master of Science.

II (d). The Four-year Course in Electrical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Elementary Physics, 280	4	4
Physical Laboratory, 282	1	1
Mechanical Drawing, M. E. 103, 104	2	2
Woodwork, M. E. 105, 106	2	2
Forge Work, M. E. 108	--	2
Engineering Lectures, 101	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Physics, 281	2	2
Physical Laboratory, 283	1	1
Descriptive Geometry, M. E. 202	--	2
Mechanical Drawing, M. E. 206	--	2
Advanced Algebra, 343	5	--
Trigonometry, 344		
Analytical Geometry, 345	--	5
General Chemistry, 302	3	3
General Chemical Laboratory, 303	2	2
Foundry, M. E. 203	2	--
Pattern-making, M. E. 205	2	--
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Tactics, 391	1	1
Military Drill, 390	3	3
Totals	24	24

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Electrical Engineering, 284	3	3
Electrical Engineering Laboratory, 289	2	2
Steam Engines and Boilers, 241	2	2
Machine-shop Work, M. E. 307, 308	1	1
Machine Design, M. E. 305, 306	2	2
Mechanics, M. E. 303, 304	2	2
Calculus, 346	5	5
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	23	23
Modern Languages, 370, 373	3	3

Senior Year.

Alternating Currents, 286	3	3
Electrical Application, 287	2	2
Electrical Transmission, 288	2	2
Electrical Engineering Laboratory, 291	2	2
Electrical Design, 292	3	2
Mechanics, M. E. 405	3	--
Mechanics of Materials, M. E. 406	--	2
Mechanical Engineering Laboratory, M. E. 431, 432	1	1
Hydraulics, 216	--	2
Journals, 365	3	--
Elect from the following 3 periods first term, 6 periods second term:		
Classics, 366	--	3
Economics, 367	--	3
Military Drill, 390	3	3
Modern Languages, 371, 374	3	3
Totals	22	22

Subjects of Instruction.

280. Physics.—Introductory course in Physics, planned to give the student a broad view of the field covered by this fundamental science for all engineering work. It includes the study of the fundamental units, the English and Metric systems of measures, definitions of force, work, power, lines of motion, principles of machines, mechanics of fluids, heat, sound, light, electricity and magnetism. Text-book, Black and Davis's *Practical Physics*. Four periods. Required of Freshmen in Engineering and Chemistry. Associate Professor HECK, Assistant Professor PRITCHETT.

281. Sophomore Physics.—A more advanced and more thorough course in Physics, arranged particularly to meet the needs of engineering students. Particular attention is paid to Mechanics, fluids, gases, heat, electricity and magnetism. Two periods. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physics 280. Associate Professor HECK, Assistant Professor PRITCHETT.

282. Physical Laboratory.—In the shops the engineering student handles and works with the materials of construction. In the laboratory he is taught to measure and observe. The course here is arranged to make him familiar through actual observation with physical phenomena and teach him how these are measured and controlled. It includes practice in handling units in the British and Metric systems, measurements, composition and resolution of forces, the lever, the inclined plane, the pendulum, density of materials, and specific gravity, the thermometer, heat and its effect on materials, sound, laws of strings, laws of lenses and mirrors, magnetism and electricity. One period. Fee, $1. Required of Freshmen in Engineering and Chemistry. Mr. MARTIN.

283. Sophomore Physical Laboratory.—A more advanced course in physical measurements accompanying classroom instruction in this subject. It includes a study of the theory of measurements upon which all engineering work is based. More care and greater accuracy, and more elaborate reports are required in this course than in the Freshman laboratory. The work is intended not only to impress the truths and principles taught in the classroom, but also to give some facility in the use of scientific instruments and training in accurate observation. One period. Fee, $1. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physical Laboratory 282. Assistant Professor PRITCHETT.

284. Direct Current Machinery and Apparatus.—A thorough study is made of the production and utilization of direct currents, begin-

ning with the theory of the magnetic circuit, electromagnetic induction, electrical measurements, storage batteries, dynamos and motors, operation and care of direct current machinery, electrical distribution and lighting. Text-book, Franklin and Esty's *Elements of Electrical Engineering.* Three periods, through the year. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281, 342, 343 and 344. Professor BROWNE.

285. Electrical Engineering.—An introductory course for students in other engineering departments, consisting of the study of the apparatus used in the production, distribution, and utilization of electrical power. Required of Juniors in Mechanical Engineering. Text-book, Timbie's *Elements of Electricity.* Two periods. Prerequisites, Subjects 281, 342, 343 and 344. Professor BROWNE, Associate Professor MCINTYRE.

286. Alternating Currents and Machinery.—A study of the flow of periodic currents in circuits containing resistance, inductance, and capacity; the construction, operation, and performance of alternating current machinery. Text-book, Franklin and Esty's *Alternating Currents.* Three periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284, 345, 346. Professor BROWNE.

287. Industrial Applications of Electricity.—A detailed study is made of the many industrial applications of electricity, such as electric traction, the electric drive in mill and factory, electric power stations, industrial electro-chemistry and electro-metallurgy, telegraphy, and telephony. Two periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Professor BROWNE, Associate Professor MCINTYRE.

288. Electrical Transmission of Power.—A practical study of the problems involved in the transmission of power from the generating station to the consumer; hydro-electric developments; high-tension transmission. Required of Seniors in Electrical Engineering. Text-book, Ferguson's *The Elements of Electrical Transmission.* Two periods. Prerequisites, Subjects 284, 289. Professor BROWNE.

289. Direct Current Laboratory.—This study accompanies that of direct current machinery. It includes use of standardizing apparatus, calibration of instruments, advanced electric and magnetic measurements, and the operation and testing of direct-current dynamos and motors. Text-book, Sever and Townsend's *Laboratory and Factory Tests,* supplemented by notes. Two periods. Fee, $2. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281 and 283. Associate Professor MCINTYRE.

290. Electrical Engineering Laboratory.—This course accompanies Study 285. Instruction is given in the care and operation of direct and alternating current machinery. Required of Juniors in Mechanical Engineering. One period. Fee, $1. Text-book, Sever's *Direct Current Tests.* Prerequisites, Subjects 281, 283. Associate Professor McINTYRE.

291. Alternating Current Laboratory.—This study is taken up simultaneously with the study of alternating currents. It includes practice with alternating currents, measurements of inductance and capacity, experimental study of transformers, alternating current generators and motors, advanced methods of testing electrical apparatus, and shop testing. Text-book, Sever and Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Fee, $2. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Associate Professor McINTYRE.

292. Electrical Design.—An introductory course in the designing of electrical apparatus, taking up the calculation of circuits and performance, the design of rheostats and heating devices, controllers, electromagnets, transformers, direct and alternating current dynamos and motors. Three periods first term, two periods second term. Required of Seniors in Electrical Engineering. Prerequisite, 284. Professor BROWNE, Assistant Professor McINTYRE.

COURSE IN CHEMISTRY.

In harmony with the general purposes for which the College was founded, the course in Chemistry is arranged to prepare young men for careers in that department. To this end the training given in general, physical, organic, and analytical chemistry is supplemented by instruction in technical chemical analysis and in applied chemical subjects. The kindred scientific subjects of Biology and Physics are taught, together with the cultural studies included in the other courses.

The chemical laboratories of the North Carolina Department of Agriculture and of the North Carolina Agricultural Experiment Station afford the student an opportunity to keep in touch with the methods of research in this department of agricultural science.

The State Museum is open to the public each day, and among other things contains a very excellent collection of the State's minerals, ores, and building stones.

There are in the city of Raleigh and its vicinity several manufacturing plants to which, through the courtesy of the owners, the students in chemistry, in company with the teaching staff of this department, make visits each year. These include plants for the manufacture of illuminating gas, sulphuric acid, fertilizers, and ice, for the extraction of cotton-seed oil, and for the dyeing of cotton goods.

Chemical Equipment.

The Chemical Department occupies the whole of the second floor of Winston Hall. There are three classrooms, one for about ten students, one for about thirty students, and one for ninety students. The classrooms are well lighted, have very convenient lecture tables, and settees with arm-rests for taking notes.

The laboratory for inorganic chemistry can accommodate three hundred and thirty-six students, the laboratory for qualitative analysis ninety-six students, and for organic chemistry and quantitative analysis about twenty students each. A small laboratory has been set aside for special work. The laboratories are fitted up with conveniently arranged desks and hoods, each of which has the necessary water and gas connections. The balance room is located near the quantitative laboratory.

The department also has a dark room for photographic work, fire-proof rooms for combustion, ample stockrooms, and a preparation room.

The Chemical library, containing an excellent collection of reference books and complete sets of some of the leading chemical journals, occupies a room convenient to the laboratories for the upper classmen.

The members of the instructing staff have offices adjacent to the laboratories.

II (e). The Four-year Course in Chemistry, leading to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Inorganic Chemistry, 300	2	2
Inorganic Chemistry (laboratory), 301	1	1
Physics, 280	4	4
Physical Laboratory, 282	1	1
Botany, Elementary, 320	3	3
Algebra, 340	5	--
Geometry, 341	--	5
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Analytical Chemistry, Qualitative, 304	3	3
Physics, 281	2	2
Physical Laboratory, 283	1	1
Geology, 327	--	2
Physiology, 325	3	--
Advanced Algebra, 343 / Trigonometry, 344	5	--
Analytical Geometry, 345	--	5
German, 370	3	3
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Tactics, 391	1	1
Military Drill, 390	3	3
Totals	24	23

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Analytical Chemistry, Quantitative, 305	4	4
Agricultural Chemistry, 306	3	--
Organic Chemistry, 307	2	2
Organic Chemistry (laboratory), 308	3	3
Bacteriology, 321	--	3
Soils, 331	3	3
German, 371	3	3
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	24	24

Senior Year.

Analytical Chemistry, Quantitative, 309	8	8
Advanced Inorganic Chemistry, 310	--	2
Physical Chemistry, 311	3	3
Physical Chemistry (laboratory), 312	1	1
Bio-Chemistry, 313	2	2
Microchemical Analysis, 314	2	--
Elect six periods from the following:		
Journals, 365	3	--
Classics, 366	--	3
German, 372	3	3
Economics, 367	--	3
Advanced Bacteriology, 322	3	3
Soils, Advanced, 332	3	--
Feeds, 335	--	3
Fertilizers, 333	--	3
Drawing, 230	2	2
Calculus, 346	5	5
Military Drill, 390	3	3
Other subjects if approved by the Professor of Chemistry.		
Totals	22	22

CHEMISTRY.

300. Inorganic Chemistry.—Hessler and Smith's *Essentials of Chemistry.* The common elements and their principal compounds, together with the fundamental principles of the science, are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. MULLEN.

301. Inorganic Chemistry.—Laboratory work. Hessler and Smith's *Laboratory Exercises.* Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the classroom are performed by the student. One period. Required of Freshmen. Fee, $2. Doctor FREDERICK.

302. General Chemistry.—McPherson and Henderson's *General Chemistry.* A study of the non-metallic elements, metals, laws of chemical combination, ionization, electrolysis, neutralization, valence, equilibrium, molecular weights, thermochemistry, etc. Three periods. Required of Sophomores in Engineering. Professor WITHERS, Doctor DOBBINS, and Mr. MULLEN.

303. General Chemistry.—Laboratory work to accompany Course 302, followed by a brief course in qualitative analysis. McPherson and Henderson's *Exercises in Chemistry.* Two periods. Required of Sophomores in Engineering. Fee, $3. Doctor DOBBINS and Mr. MULLEN.

304. Analytical Chemistry.—Tower's *Qualitative Chemical Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys, and minerals. Three periods. Required of Sophomores in Chemistry. Fee, $4. Doctor MILLER.

305. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis.* Gravimetric and volumetric analysis of pure salts at first and later of substances of agricultural and industrial importance. Four periods. Required of Juniors in Chemistry. Fee, $4. Doctor WILLIAMS.

306. Agricultural Chemistry.—Stoddart's *Chemistry of Agriculture.* A study of plants and animals, their nutrition and products, from a chemical standpoint. Three periods, second term. Required of Juniors in Chemistry. Professor WITHERS.

307. Organic Chemistry.—Moore's *Outlines of Organic Chemistry.* A study of the fundamental principles of Organic Chemistry and of the most important organic compounds. Two periods. Required of Juniors in Chemistry. Doctor DOBBINS.

308. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual.* A series of experiments illustrating the methods used in the preparation of the principal classes of organic compounds and the fundamental reactions involved in their transformations. Three periods. Required of Juniors in Chemistry. Fee, $3. Doctor DOBBINS.

309. Analytical Chemistry.—Quantitative analysis, advanced. A continuation of Course 305. Eight periods. Required of Seniors in Chemistry. Fee, $8. Doctor WILLIAMS.

310. Advanced Inorganic Chemistry.—A lecture course in which is discussed the development of the science of chemistry, special attention being given to the periodic law, radio activity, the coördination theory, and the modern trend of chemical thought. Two periods, second term. Required of Seniors in Chemistry. Doctor MILLER.

311. Physical Chemistry.—Jones's *Introduction to Physical Chemistry.* The fundamental principles of Physical Chemistry are taken up, including the constitution of matter, the gas laws, thermochemistry, photochemistry, electrochemistry, chemical dynamics, and equilibrium, emphasis being laid on the phenomena of solutions. Three periods. Required of Seniors in Chemistry. Doctor FREDERICK.

312. Physical Chemistry.—Laboratory work. Here the student carries out experiments involving molecular weight determinations, lowering of freezing point, elevation of boiling point, conductivity measurements, and other determinations as they are deemed expedient. One period. Required of Seniors in Chemistry. Fee, $2. Doctor FREDERICK.

313. Bio-Chemistry.—A study of carbohydrates, fats and proteins. Two periods. Required of Seniors in Chemistry. Professor WITHERS.

314. Microchemical Analysis.—A laboratory course in which the common elements are detected by means of the microscope. The student is also taught to identify such fabrics as silk, wool, linen, cotton, etc., and to analyze alloys, soils, fertilizers, and other commercial products for their constituents. Two periods, first term. Required of Seniors in Chemistry. Fee, $2. Doctor MILLER.

BOTANY AND BACTERIOLOGY.

320. General Botany.—This course is planned to give a general knowledge of the elementary facts and fundamental principles of Botany. It aims to supply the foundation upon which subsequent courses in this division are built, as well as the basic facts upon which rest certain phases of applied botany, such as horticulture and agronomy. The first term will be devoted to the general mor-

phology of the seed plants. Attention will be devoted to the anatomical features of seeds, flowers, leaves, fruits, stems, roots, cells, tissues, and tissue systems, and to the correlation of anatomical structures with their physiological functions. The second term will be devoted to the general morphology of algæ, fungi, mosses, and ferns, using selected representatives as types in both the lecture and laboratory work. Special emphasis will be laid upon nutrition, reproduction, life history, and evolution of sex of those forms which are of both scientific and economic importance. Fee, $1. Three periods. Required of Freshmen. Professor WOLF, Mr. COOPER, Mr. LEHMAN.

321. Agricultural Bacteriology.—The subject-matter of this course includes an introduction to the principles of bacteriology. The course is designed to serve as a basis for students contemplating specialization in applied phases of the subject, such as bacteria in relation to plant diseases, to human diseases, and to the diseases of domestic animals; soil bacteriology; dairy bacteriology; sanitation with reference to sewage disposal and water supplies; and the consideration of bacterially produced processes in the industries. The student becomes familiar through laboratory practice with methods employed in the culture and study of bacteria. Fee, $3. Three periods, second term. Professor WOLF, Mr. COOPER.

321. Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation and disinfection, and to the relation of bacteria to disease in plants and animals, and to agricultural practice. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Three periods, second term. Required of Juniors in Chemistry. Mr. COOPER.

322. Bacteriology (Advanced).—A course designed to extend knowledge in special fields and to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil, or air. The course is flexible and will be made to fit the requirements of those students electing it. Three periods. Elective for Seniors in Chemistry. Prerequisite, Botany 321. Professor WOLF, Mr. COOPER.

PHYSIOLOGY.

325. Animal Physiology.—Mounted skeletons of man, of the horse, and of the cow will be used in a brief study of elementary anatomy of man and domestic animals. This will be followed by a comparative study of some of the functions of the various systems and

organs of the body, such as the skeleton, muscles, nerves, organs of special sense, digestion, circulation, respiration, skin, etc. The subject will be covered by lectures, recitations, demonstrations and laboratory exercises. Three periods, first term. Required of Sophomores in Chemistry. Doctor ROBERTS.

GEOLOGY.

327. Geology.—Introductory course in Geology. Pirsson and Schuchert's *Text-book of Geology*, Part I. A brief course treating of soil, the action of the various agencies on the land, building up of land by water, and the study of the principal constituents of the soil. Two hours, first term. Required of Sophomores in Chemistry. Doctor WILLIAMS and Mr. MULLEN.

SOILS.

331. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, drainage, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the United States and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of Juniors. Prerequisites, Chemistry 300, 301, and Physics 280. Professor SHERWIN.

332. Advanced Soils.—In this course the student will be guided in the study of any line of soils work he may choose, either along practical or scientific lines. Laboratory work will be given. Considerable reference will be made to Experiment Station literature with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. Three periods, first term. Prerequisite, Soils 331. Elective for Seniors in Chemistry. Professor SHERWIN.

333. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability, and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers, as shown by their productive capacity. Fertilization of all the principal crops

of the State and of any special crops in which the class is interested will be discussed, considering amount, method, and time of application, as well as the most economical formula to use. Three periods, second term. Elective for Seniors in Chemistry. Prerequisite, Soils 331. Professor SHERWIN.

STOCK FEEDING.

335. Stock Feeding.—A study of the compositions of feeds, and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles, so that he can compound suitable rations for the different classes of livestock. Special emphasis will be laid upon practical problems in feeding. Three periods, second term. Elective for Seniors in Chemistry. Professor GRAY.

MATHEMATICS.

While the subject of mathematics is presented in such a manner that the student obtains a thorough working knowledge of those principles which he needs in his Engineering Course, yet it is not the purpose to subordinate the general theory of mathematics to the practical side. The work consists of recitations, written exercises, and lectures, with frequent oral and written quizzes.

340. Algebra.—Wells's *New Higher Algebra.* This course begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

341. Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Required of Freshmen. Prerequisites, entrance requirements and a term standing of 50 per cent or more on the work of the first term. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

343. Advanced Algebra.—Wells's *New Higher Algebra.* The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 340 and 341. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

344. Trigonometry.—Wells's *Plane and Spherical Trigonometry.* Plane Trigonometry. Definitions of the trigonometric functions; derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 340 and 341. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

345. Analytical Geometry.—Wentworth's *Analytical Geometry.* Loci of equations, straight line, circle, parabola, ellipse, hyperbola, a discussion of the general equation of the second degree, higher plane curves, and geometry of three dimensions. Required of Sophomores. Five periods, second term. Prerequisite, 344. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. TUCKER.

346. Differential and Integral Calculus.—Osborne's *Elements of Calculus.* A thorough treatment of the fundamental principles and derivations of formulæ; applications to various problems, such as expansion into series, evaluation and indeterminate forms, maxima and minima, radius of curvature, lengths of curves, areas, volumes, etc. Five periods, first term; four periods, second term. Required of Juniors in Engineering. Elective for Seniors in Chemistry. Prerequisites for differential calculus, 343 and 345; for integral calculus, differential calculus. Professor YATES, Assistant Professor HARRELSON, Mr. TUCKER.

ENGLISH.

360. English Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Assistant Professor PRATT, Mr. WEBBER.

361. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely on class and parallel reading. Three periods, second term. Required of Freshmen. Assistant Professor PRATT, Mr. WEBBER.

362. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three

eriods, first term, and second term to March 1. Required of Sophoores. Associate Professor SUMMEY, Assistant Professor PRATT.

363. Public Speaking.—The principles governing the preparation nd delivery of public addresses are given in text-book and in ectures. The reading in class of addresses in various styles, the riting of several papers by each member of the class, and practice n delivery, complete the work. Three periods, after March 1. equired of Sophomores. Associate Professor SUMMEY, Assistant rofessor PRATT.

364. English Literature.—The inductive study of the development f English poetry and prose is pursued in the works of standard riters of the different periods. The continuity is emphasized by text-book on the history of the literature. Occasional essays and arallel reading form an important part of the work. The purpose f the course is to cultivate in the student a taste for the best ritings of the greatest writers. Three periods throughout the ear. Required of Juniors. Professor HARRISON, Associate Professor UMMEY.

365. Journals.—To give practical knowledge of technical and of ther standard journals is the purpose of this course. The frequent ssays required are mainly of scientific and technical character. hree periods, first term. Required of Seniors in Civil and Electrical ngineering. Elective for Seniors in Mechanical Engineering and hemistry. Professor HARRISON.

366. Classics.—The lives and works of the greatest scientists, and f other great writers, particularly of the nineteenth century, are tudied in this course. Essays will be continued as in the first rm. Three periods, second term. Elective for Seniors. Professor ARRISON.

ECONOMICS.

367. Railroad Transportation.—A consideration of the different stems of railroad rates as affecting the shipment of farm products nd the location and development of industries generally. Designed meet the needs of students in Engineering, Textile Industry, and griculture. Three periods, first term. Elective for Seniors. Prossor CAMP.

MODERN LANGUAGES.

The purpose of the work in this department is to enable the stunt to read and become acquainted with German, French, and panish scientific literature. Grammar is taught only secondarily nd as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years work in German is required of students taking the Chemical course, and it is recommended that the students of this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

370. Beginner's German.—Grammar, composition, and translation. Bacon's *German Grammar.* Reader to be selected. Required of Sophomores in Chemistry course. Elective for Juniors of other courses. Both terms, three hours. Assistant Professor HINKLE.

371. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical German the second term. Gore's German Science Reader and Wallentin's *Grundzüge der Naturlehre.* Required of Junior Chemists. Elective for Seniors of other courses. Both terms, three hours. Assistant Professor HINKLE.

372. Advanced Scientific German.—Chemical German forms the basis of the work. Text to be selected. Senior elective. Both terms, three hours. Assistant Professor HINKLE.

373. Beginner's French.—Grammar, composition, and translation the first term. Introductory scientific French the second term. Giese's *Graded French Method.* Bowen's *First Scientific French Reader.* Junior elective. Both terms, three hours. Assistant Professor HINKLE.

374. Beginner's Spanish.—Grammar, composition, and translation. Marion y des Garenes' *Introduccion a la Lengua Castellana,* first term; Ramsey's *Elementary Spanish Reader,* second term. Senior elective. Three hours a week, both terms. Assistant Professor HINKLE.

375. Intermediate Spanish.—A continuation of Beginner's Spanish. Designed primarily to develop rapid reading and translation and conversation. A number of easy Spanish stories are read. Some attention is given to composition and letter-writing. Open to students who have had one year's work or more in the language. Senior elective. Three hours, both terms. Assistant Professor HINKLE.

MILITARY SCIENCE.

390. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gal-

lery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may take either the drill or three extra hours in some other subject instead. Lieutenant SPURGIN and Cadet Officers of the Battalion.

391. Tactics.—Theoretical instruction in infantry drill regulations, field-service regulations, map reading, and small-arms firing manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

III. TEXTILE COURSES.

III (a). The Four-year Course in Textile Industry.

THE TEXTILE DEPARTMENT.

The Textile Department, which is a fully equipped Textile School, contains all the necessary machinery for instruction in manufacturing cotton yarns and fabrics from the bale to the finished product. The student is taught the theory of cotton spinning, weaving, designing, and dyeing. In connection with the theory, he learns the practical operation of cotton machinery used in carrying on the different processes. Further, he learns such essential practical details as enable him to adjust and fix the machinery so as to produce the proper results. As a result of this training, each student produces for himself cotton yarns of different numbers, and cotton fabrics of different kinds, from his own designs and choice of colors.

TEXTILE INSTRUCTION.

In this department two courses of instruction are offered, the four-year course, leading to the degree of Bachelor of Engineering, and the two-year course in carding and spinning, weaving, designing, and dyeing.

Four-year Course.

The four-year course offers complete facilities for full instruction in all branches of cotton-mill work. Practical training in textile work begins in the Freshman year and forms a part of the work in each of the following years. The combination of practical with theoretical training is begun in the Sophomore year, and continues in the Junior and Senior years. The theoretical work is directly related to the practical work going on, and this combination offers the best means for studying cotton-mill work and its operations.

Two-year Course.

The two-year course is offered to students who cannot spend the time required for the four-year course, or who have had practical experience in the mill and wish to avail themselves of our facilities for giving special instruction in textile work.

Textile Building and Equipment.

The textile building is located on the west campus. It is a two-story brick building one hundred and fifty by seventy-five feet, with a basement. Throughout, its construction is similar to that of a cotton mill, being an illustration of standard construction in this class of buildings. The basement is fitted up with a laboratory and classroom for instruction in dyeing and with dyeing machinery. On the first floor are located the hand and power looms and the necessary warp-preparation and finishing machinery. The carding and spinning machinery is located on the second floor. Electricity is used as a motive power, the machinery of each department in the building being driven by a separate motor. The machinery equipment consists of the latest types of cotton-mill machinery, manufactured by American builders.

Power and Power Transmission.

One 25-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving carding and spinning machinery.

One 15-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving weaving machinery.

One 10-horsepower 3-phase 550-volt motor, made by Fairbanks-Morse Company, for driving dyeing machinery.

Pulleys, shafting, hangers, and couplings, made by Jones & Laughlin Company, Ltd., Pittsburg, Pa.

Carding Department.

Opening Room.—One cotton gin, made by Continental Gin Company, Birmingham, Ala. One thread extractor, made by Kitson Machine Company, Lowell, Mass. One combination opener and breaker lapper, made by Kitson Machine Company, Lowell, Mass. One 40-inch single beater finisher lapper, with patent carding beater, made by Kitson Machine Company, Lowell, Mass.

Carding Room.—One 40-inch revolving flat card, 110 flats, with coiler, made by Whitin Machine Works, Whitinsville, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Potter & Johnston Company, Pawtucket, R. I. One single railway head, with coiler, leather rolls, made by Whitin Machine Works, Whitinsville, Mass. One drawing frame, four deliveries, metallic rolls, made by Whitin Machine Works, Whitinsville, Mass. Two drawing frames, four deliveries, leather rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I. One sliver lap machine, one ribbon lap machine, and one two-head combing machine, made by

Whitin Machine Works, Whitinsville, Mass. One two-head Nasmith comber, made by John Hetherington & Sons, Ltd., Manchester, England. One 36-spindle slubber for 11 by 5½-inch bobbin, with ball-bearing top rolls; one 48-spindle intermediate roving frame for 9 by 4½-inch bobbin; one 64-spindle fine roving frame for 7 by 3½-inch bobbin, with ball-bearing top rolls; one 80-spindle jack roving frame for 6 by 2½-inch ribbon, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I.

Spinning Department.

Spinning Room.—One 120-spindle spinning frame for warp, tape drive, with combination build; one 74-spindle spinning frame for filling, made by Whitin Machine Works, Whitinsville, Mass. One 180-spindle spinning frame for warp, tape drive, with combination build; one 180-spindle spinning frame, tape drive, with combination build, made by Fales & Jenks Machine Company, Pawtucket, R. I.

Spooling, Twisting, and Winding.—One 100-spindle spooler, made by Whitin Machine Works, Whitinsville, Mass. One 96-spindle wet twister, made by Whitin Machine Works, Whitinsville, Mass. One 50-spindle reel, one-half live, one-half dead spindles, made by D. A. Tompkins Company, Charlotte, N. C. One 24-spindle skein winder, made by Oswald Lever Company, Philadelphia, Pa. One 6-spindle universal winding machine, made by Universal Winding Company, Boston, Mass. One section warper, 400 ends, made by T. C. Entwistle Company, Lowell, Mass.

Weaving Department.

Warp Preparation.—One 12-spindle bobbin-winding machine, made by Jacob K. Altemus, Philadelphia, Pa. One 40-spindle bobbin-winding machine, made by Universal Winding Company, Boston, Mass. One beaming machine, made by Lewiston Machine Company, Lewiston, Me. One beaming machine, complete, made by the T. C. Entwistle Company, Lowell, Mass. One slasher, made by Cohoes Machine Company, Cohoes, N. Y.

Looms.—Six narrow sheeting looms, one wide sheeting loom, two 4 by 1 box gingham looms, one 16-harness dobby, two 20-harness dobby looms, 4 by 1 box, made by Whitin Machine Works, Whitinsville, Mass. Two sheeting looms, one 12-harness dobby loom, 2 by 1 box, with leno motion, one 25-harness dobby loom, 4 by 1 box, one terry towel loom, 3 by 1 box, 16-harness dobby, one 4 by 4 box Gem loom, 20-harness head motion, one 4 by 1 box loom with 400-hook Halton jacquard, double-lift single cylinder, one 4 by 4 box loom with 400-hook jacquard, one 4 by 4 box loom with 1248-hook jacquard,

one 4 by 1 box loom with Halton table damask jacquard, one carpet jacquard, made by Crompton & Knowles Loom Works, Worcester, Mass. One 25-harness dobby loom, made by Saco-Lowell Shops, Lowell, Mass. One bag loom, made by Lewiston Machine Co., Lewiston, Maine. One Stafford automatic sheeting loom, one Stafford automatic 15-harness dobby towel loom, made by the Stafford Company, Readsville, Mass.

Finishing.—One No. 25 railway sewing and rolling machine, one inspecting machine, one brushing machine, one No. 3 calender rolling machine.

Dyeing Department.

The Dyeing Department is located in the basement of the Textile Building, and consists of an experimental dyeing laboratory with desk room sufficient for thirty students, a lecture-room, a stock-room, an office, and a room seventy by fifty feet, which is fitted up to give instruction in practical dye-house work.

The dyeing laboratory is well fitted up with appropriate work tables and all the necessary apparatus for experimental dyeing, dye-testing, color-matching, and the testing of dyed samples by light, acids, alkalis, etc., as well as for carrying out the various chemical operations necessary in dyeing. The dye-house is equipped with the proper dyeing machinery needed in the dyeing of large quantities of material, and the giving of practical instruction in boiling out, bleaching, and dyeing of raw stock, cops, skeins, warps, and piece goods.

The department has a large collection of dyestuffs and color cards. Through the kindness of the various dyestuff dealers and manufacturers, the department is regularly supplied with all new dyestuffs and color cards as soon as they are put on the market, thus affording the student ample opportunity to become familiar with the latest methods and products for commercial work. The department is indebted to the following firms for donations of dyestuffs and chemicals:

Farbwerke-Hoechst Company, New York.
Badische Company, New York.
Farbenfabriken of Elberfeld Company, New York.
American Dyewood Company, New York.
Berlin Aniline Works, New York.
Cassella & Co., New York.
Kalle & Co., New York.
Geisenheimer & Co., New York.

Dye-house Equipment.—Seven dye vats; one 10-gallon steam-jacketed copper kettle; one steam aging box; one Franklin dyeing machine; one 5-gallon steam-jacketed copper kettle; one Tolhurst Machine Works hydro-extractor; one Schaum & Uhlinger hydro-extractor; one Mather & Platt cloth printing machine.

A full equipment of analytical balances and other necessary apparatus for experimental work is provided.

III (a). The Four-year Course in Textile Industry, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.*	
	1st Term.	2d Term.
Carding and Spinning, 400†	1	1
Weaving, 401	2	2
Mechanical Drawing, 430	2	2
Shop Lectures, 431	2	--
Woodwork, 432	2	2
Forge Work, 433	--	2
Algebra, 441	5	5
Geometry, 442		
Inorganic Chemistry, 420	2	2
Inorganic Chemistry (laboratory), 421	1	1
Composition and Rhetoric, 450	3	--
American Literature, 451	--	3
Military Drill, 480	3	3
Totals	23	23

*The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

Sophomore Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	2	3
Weaving, 401	2	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Elementary Physics, 440	3	3
Analytical Chemistry (qualitative), 422	3	3
Drawing, 430	--	2
Advanced Algebra‡ / Trigonometry, 445	5	--
Advanced Rhetoric, 452	3	3
Public Speaking, 453	--	
Military Drill, 480	3	3
Military Tactics, 481	1	1
Totals	24	23

‡First five weeks.

Junior Year.

Carding and Spinning, 400	4	4
Weaving, 401	3	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Dyeing, 410	2	2
Dyeing (laboratory), 411	2	2
Steam Engines and Boilers, 435	2	2
Motors, 439	2	2
English Literature, 454	3	3
Military Drill, 480	3	3
Totals	23	23
Modern Languages, 460, 463 (elective)	3	3

Senior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	4	4
Weaving, 401	4	4
Textile Designing, 402	3	3
Cloth Analysis, 403	1	1
Dyeing, 410	1	1
Dyeing (laboratory), 411	3	3
Mill Accounting and Mill Costs, 404	1	1
Machine-shop Work, 434	2	2
Elect three periods from the following:		
Journals, 455	3	--
Classics, 456	--	3
Economics, 457	--	3
Military Drill, 480	3	3
Modern Languages, 461, 464	3	3
Totals	22	22

Subjects of Instruction.

400. Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: Classifying the plant, its growth, varieties, ginning, baling and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers, railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts, speed of parts, production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: Taggart's *Cotton Spinning.* Required of Freshmen, Sophomores, Juniors, and Seniors. Mr. Dick.

401. Weaving.—Lectures and practice in warp preparation, operating and fixing looms, cloth-finishing machinery. Warp preparation; pin frame warper; section warper; beam warper; construc-

tion of beam warper, stop motion, measuring motion, creel; pattern warp making; long and short chain beamers. Slashing: Steam cylinder slasher; hot-air slasher; construction of slasher, creel, cylinder, immersion roll, squeeze rolls, drying fan, separator rolls, winding yarn on beam, cone drive, slow motion, measuring and cut marking motion. Sizing: Construction of size kettle; size mixing and boiling; division of sizing ingredients; value of ingredients; sizing recipes for light, medium, and heavy sizing. Loom-mounting: Reeds and harnesses; drawing in and putting warps in loom. Looms: Hand looms and power looms; construction of plain loom; principal movements in weaving; let-off and take-up motions; filling stop motion; warp stop motion. Cams and their construction. Magazine looms, construction and advantages. Drop box looms: Chain building for box looms; changing boxes to have easy running looms; construction and value of multipliers; timing and fixing box motions. Pick and pick-looms. Box-chain and multiplier-chain building; arrangement of colors in boxes to give easy-running loom. Ball and shoe-pick motion. Construction and fixing of head motion. Dobby, single and double index; construction and fixing of dobby; extra appliances necessary for weaving leno, towel, and other pile fabrics. Value of easers; half motion; and jumper attachment for leno. Springs and spring-boxes. Pattern chain building. Jacquard: Single and double lift; construction and tie-up. Weave-room calculations, speed and production calculations, relative speed of looms, counts of cotton harness. Finishing: Inspection of cloth; singeing and brushing; calendering, tentering; folding and packing for the market. Equipment necessary for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: Nelson's *Weaving, Plain and Fancy.* Required of Freshmen, Sophomores, Juniors, and Seniors in the Four-year Course, and of first- and second-year students in the Short Course. Professor NELSON, Mr. STEED.

402. Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves: Plain, twill, satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves, plain and fancy basket weaves, warp and filling rib weaves. Broken twills, curved twills, corkscrew twills, entwining twills. Granite weaves, satin shading. Combination of weaves; figured weaving on plain ground. Satin and figured stripes on plain ground. Spots arranged in different

orders on plain, twill, satin ground. Imitation leno, honeycomb weaves. Bedford cords and combination with other weaves. Wave designs, pointed twills, diamond effects. Plain and fancy piques. Double plain, figured double plain. Double cloths. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp; cloths ornamented with extra filling. Cotton velvet. Corduroy. Matelasse, leno weaves with one, two, and more sets of doups. Principles of working both top and bottom doups. Combination of plain and fancy weaves with leno. Methods of obtaining leno patterns. Jacquards. Distribution and setting out of figures for geometrical and floral effects. Distributing figures to prevent lines. Areas of patterns. Preparation of sketches. Transfer of sketches to design paper. Painting in the design with different weaves according to sketch. Shading the patterns. Card cutting and lacing. Required of Sophomores, Juniors, and Seniors. Professor NELSON, Assistant Professor HALSTEAD, Mr. STEED.

403. Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of Sophomores, Juniors, and Seniors. Professor NELSON, Assistant Professor HALSTEAD, Mr. STEED.

404. Mill Accounting and Cost Finding.—The general fundamental principles of the various systems of cost-finding as applicable to the different classes of manufactured products are carefully explained as well as questions of commissions, discounts, depreciation, inventories, distribution of expenses, etc. As a clear understanding of accounting is necessary for intelligent cost-finding, the method of keeping accounts is studied in detail. The general idea is to impress on the student the relative cost of production for any class of manufactured product and to show how the different processes of manufacturing influence cost. One period, first and second terms. Required of Seniors. Assistant Professor HALSTEAD.

DYEING COURSE.

This course is especially for those who wish to engage in any branch of Textile Chemistry, Dyeing, Bleaching, Finishing, or in the manufacture or sale of dyestuffs and chemicals used in the textile industry, and is designed to give a scientific technical education to those who desire to embrace these branches of industrial technology.

Dyeing as an art has long been practiced, but with the introduction of scientific methods it is rapidly developing and assuming a position in the front rank of applied sciences.

As the textile industries of the State increase, the need of young men who have been trained in the principles as well as the practice of the different factory operations becomes apparent. In the course in dyeing the student is taught the different practical methods of the dye-house; the chemistry of the dyestuffs, some of each class of which he actually makes; the chemical changes brought about by mordants, assistants, etc. He also learns color matching, dye testing, and the methods for the analysis of the different chemicals used in the dye-house. He carries on the study of carding, spinning, weaving, designing, cloth analysis, etc., to the end of the Sophomore year, with the other textile students, and with them devotes attention to shop-work, drawing, engines, boilers, etc., together with such general studies as English, Mathematics, Physics, and General Chemistry, which are required in all Four-year Courses.

III (b). The Four-year Course in Dyeing, leading to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	1	1
Weaving, 401	2	2
Mechanical Drawing, 430	2	2
Shop Lectures, 431	2	--
Woodwork, 432	2	2
Forge Work, 433	--	2
Algebra, 441	5	5
Geometry, 442	--	
Inorganic Chemistry, 420	2	2
Inorganic Chemistry (laboratory), 421	1	1
Composition and Rhetoric, 450	3	--
American Literature, 451	--	3
Military Drill, 480	3	3
Totals	23	23

Sophomore Year.

Carding and Spinning, 400	2	3
Weaving, 401	2	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Elementary Physics, 440	2	2
Analytical Chemistry (qualitative), 422	3	3
Drawing	--	2
Advanced Algebra, 444 Trigonometry, 445	5	--
Advanced Rhetoric, 452	3	3
Public Speaking, 453	--	
Military Drill, 480	3	3
Military Tactics, 481	1	1
Totals	23	22

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Dyeing, 410	2	2
Dyeing (laboratory), 411	3	3
Organic Chemistry, 424	2	2
Organic Chemistry, Laboratory, 425	3	3
Analytical Chemistry, Quantitative, 426	4	4
English Literature, 454	3	3
German 460	3	3
Military Drill, 480	3	3
Totals	23	23

Senior Year.

Dyeing, 410	3	3
Dyeing (laboratory), 411	2	2
Analytical Chemistry, 426	8	8
German, 461	3	3
Elect six periods from the following:		
Journals, 455	3	--
Classics, 456	--	3
Economics, 457	--	3
Military Drill, 480	3	3
Totals	22	22

Subjects of Instruction.

410. Dyeing.—With the microscope and other testing apparatus the student makes a careful study of the various fibers used in the textile industry. He also studies the chemical and physical properties of these fibers, and the action of acids, alkalis, heat, moisture, and the various other agencies to which fibers are liable to be subjected. He next takes up the study of the fundamental principles which underlie the arts of bleaching and dyeing, such as the boiling out and bleaching of cotton, and the chemical reactions involving each step; the adaptability of water for bleaching and dyeing, followed by the theories of dyeing; substantive dyestuffs and their application to cotton; after-treatment of direct dyestuffs, including

diazotising and developing and the topping with basic dyestuffs; the application to cotton of basic dyestuffs, acid dyestuffs, mordant dyestuffs, including a study of the various mordants and their fixation with metallic salts; dyeing with sulphur dyestuffs, indanthrenes, indigo, natural and artificial, aniline black, turkey red, and the insoluble azo colors developed on the fiber; the methods of bleaching and dyeing of linen, jute, ramie, and other vegetable fibers; the scouring and bleaching of wool; the carbonization and chlorination of wool; the application of basic, acid, chromo, eosin, and direct colors to wool; dyeing wool with logwood, fustic, and other natural dyewoods; methods of the making and dyeing of artificial silk; the boiling off, bleaching and dyeing of natural silk; study of the chemical and physical changes which take place during mercerization; also the methods of dyeing mercerized goods; the use of the various kinds of machines used in bleaching and dyeing; the dyeing of raw-stock, skeins, cops, warps, piece goods, hosiery, underwear, and unions; the science of color-mixing; color-matching on textiles; the use of the tintometer and colorimeter; calico printing, including the various methods of preparing the various pastes, thickening agents, mordants, and assistants used in printing; quantitative analysis of mixed yarns, and fabrics composed of cotton, wool, and silk; the testing of dyestuffs for their shade, tinctorial power, and leveling properties; comparative dye trials to determine money value; testing for mixtures; the reactions of acids, alkalis, and reducing agents on several samples taken from the different classes of dyestuffs.

The course of lectures, as outlined above, will include the consideration of many difficult problems that arise in the dye-house, with especial reference to the dyeing, mercerizing, and finishing of cotton yarns and pieces. Required of Juniors and Seniors in Textile Industry. Assistant Professor HALSTEAD.

411. Dyeing Laboratory.—A series of experiments is performed which covers all the subjects taken up in the lecture course, and includes a large amount of work done in the laboratory and dye-house. Special stress is put on the matching of colors and the dyeing of sulphur and indanthrene dyestuffs. Each student is required to bleach and dye a large number of samples of yarn and cloth on a small scale, and is required to mount specimens of his work in a pattern book. At the discretion of the instructor in charge, the class bleaches and dyes larger quantities of raw-stock, cloth and yarn in the dye-house, as well as prints samples on the laboratory printing machine. This work will be supplemented by visits to the mills in the city of Raleigh which do dyeing. Required of Juniors and Seniors in Textile Industry. Assistant Professor HALSTEAD.

CHEMISTRY.

420. Inorganic Chemistry.—Hessler and Smith's *Essentials of Chemistry.* The common elements and their principal compounds, together with some of the fundamental principles of the science are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. MULLEN.

421. Inorganic Chemistry.—Laboratory work. Hessler and Smith's *Laboratory Exercises.* Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the classroom are performed by the student. One period. Required of Freshmen. Fee, $2. Doctor FREDERICK.

422. Analytical Chemistry.—Tower's *Qualitative Chemical Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys, and minerals. Three periods. Required of Sophomores. Fee, $4. Doctor MILLER.

423. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis.* Gravimetric and volumetric analysis. Special attention is given to the determination of elements in substances of special interest to textile students. Four periods. Required of Juniors in Dyeing. Fee, $4. Doctor WILLIAMS.

424. Organic Chemistry.—Moore's *Outlines of Organic Chemistry.* A study of the fundamental principles of organic chemistry and of the most important organic compounds. Two periods. Required of Juniors in Dyeing. Doctor DOBBINS.

425. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual.* A series of experiments illustrating the methods used in the preparation of the principal classes of organic compounds and the fundamental reactions involved in these transformations. Three periods. Required of Juniors in Dyeing. Fee, $3. Doctor DOBBINS.

426. Analytical Chemistry.—Quantitative Analysis, advanced. A continuation of Course 423. Eight periods. Required of Seniors in Dyeing. Fee, $8. Doctor WILLIAMS.

MECHANICAL ENGINEERING.*

Freshman Year.

101. Engineering Lectures—First Term.—A series of lectures i tended to acquaint students with general engineering terms and pri ciples; also with materials used in engineering work, such as lumbe iron, steel, copper, brass, cement, coal, and other materials. Lante slides are used wherever possible. Two periods. Required of Fres men in Engineering and Textile Industry. Professor SATTERFIE and Assistants.

103. Mechanical Drawing—First Term.—Instruction in care a use of instruments; lettering, geometrical drawing; projection dra ing; isometric and cabinet projections; drawings from workin sketches of machine details; tracing; blue-printing; elements descriptive geometry; cylinders; cones; prisms; intersections a development; miscellaneous problems. Two periods. Required Freshmen in Engineering and Textile Industry. Mr. BRIGGS.

104. Mechanical Drawing—Second Term.—Continuation of 10 Two periods. Required of Freshmen in Engineering and Texti Industry. Mr. BRIGGS.

Note.—Each student will be required to furnish, at his own e pense, the following outfit. To insure uniformity in grade of i struments and other supplies, the Department keeps for sale, pra tically at cost, the articles named below. These may be purchas elsewhere, but must be approved by the Department. Estimat cost of outfit, $12 to $15.

Text-book.
Drawing board, 22x32 inches.
T-square, 30 inches.
60° triangle, 9 inches, transparent.
45° triangle, 7 inches, transparent.
12-inch triangular architect's scale.
4H pencil. H or F pencil.
Erasers for ink and pencil.
Penholder with five points.
Pencil-sharpener.

Instrument set consisting of:
6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen.

*For further information, see Course in Mechanical Engineering.

105. Wood Shop Work—First Term.—Elementary instruction in bench work, involving the use of ordinary hand tools, such as planes, saws, squares, chisels, etc. All exercises are made from blue-prints and sketches. This work leads up largely to cabinet lines, such as bookcases, tables, drawing boards, and similar things. Special attention is given to making cabinets, tables, and other articles for the different laboratories, and also to a general line of repairing for the College. The student also gets a good working knowledge of wood-working machinery, such as hand saw, jig saw, rip saw, planers, boring machines, jointers, and other machines. They also get good experience in hand finishing, scraping, gluing, sand-papering, staining, and varnishing. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. WHEELER, Mr. MARTIN.

106. Wood Shop Work—Second Term.—Work similar to that outlined under 105. During the latter half of the spring term the time is devoted principally to wood-turning, which includes turning between centers, face plate, chuck work, polishing, and finishing. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. WHEELER, Mr. MARTIN.

325. Heat Engines—First Term.—Nature and measurements of the units of heat, work, and power as used in steam engineering. A study of the properties of steam; use of the "steam-tables" for solving problems. The theory of steam calorimeters, mechanical mixtures, and combustions of fuels. The application of the above to boilers for the purpose of determining rating, capacity, and efficiency. A critical examination of the function of the various boiler auxiliaries. Two periods. Required of Juniors in Electrical and Textile Engineering. Prerequisites, Physics 281, Algebra 343. Assistant Professor VAUGHAN.

326. Heat Engines—Second Term.—The study of elementary thermodynamics as applied to the steam and gas engine cycles. The steam engine, including classification and details, valves, valve gears, and governors. Determination of indicated and brake horsepowers and heat efficiency from given conditions. Steam turbines and gas engines will be studied briefly. Two periods. Required of Juniors in Electrical and Textile Engineering. Prerequisite, M. E. 325. Assistant Professor VAUGHAN.

ELECTRICAL ENGINEERING.

439. Electric Motors.—The elementary laws of electric currents, principles, construction, operation, and care of electrical machinery, electric lamps and illumination. A study of the use of electrical machinery in factories, with special reference to textile mills. Two

periods. Required of Juniors in Textile Industry. Associate Professor McINTYRE.

PHYSICS.*

440. Textile Physics.—As textile work continually presents the operations of forces in machines and the more intricate problems of humidity and elasticity, a thorough course in Physics is required of all Textile students. This course emphasizes the particular problems met in textile work and gives a broad basis for interpretation of related engineering problems. The work embraces lectures, recitations on text-book assignments, and practical measurements in the laboratory. Lectures are given with demonstrations of the action of forces in machines and materials as nearly as possible like those the student will meet in practical textile work. The historical development of the science is discussed to give the students a broader outlook and to stimulate a desire for further study. These demonstrations and the work in the laboratory are made with actual machines and problems taken from actual practice. Two periods of recitation and one period of demonstration or laboratory work throughout the year. Required of Sophomores. Assistant Professor PRITCHETT.

MATHEMATICS.

441. Algebra.—Wells's *New Higher Algebra.* Begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutation, combinations, and continued fractions. At the beginning of the term a review is usually given on involution, evolution, theory of exponents, and radicals. Five periods, first term; five periods, second term to February 15. Required of Freshmen. Prerequisites: For first term, entrance requirements; for second term, the work of the first term, or, in case of failure, a term standing of 60 per cent or more, and a final examination grade of at least 40 per cent, on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

442. Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry.* A complete course in Plane Geometry, including numerous original exercises. Second term. Five periods, from February 15 to end of term. Required of Freshmen. Prerequisite, entrance requirements. Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

*For further information, see Course in Electrical Engineering.

444. Advanced Algebra.—Wells's *Higher Algebra.* The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 441 and 442. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

445. Trigonometry.—Wells's *Plane and Spherical Trigonometry.* Plane Trigonometry. Definitions of the trigonometric functions; derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 441 and 442. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. SMITH.

ENGLISH.

450. English Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Assistant Professor PRATT, Mr. WEBBER.

451. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Assistant Professor PRATT, Mr. WEBBER.

452. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first and second term to March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

453. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods after March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

454. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard

writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods through the year. Required of Juniors. Professor HARRISON, Associate Professor SUMMEY.

455. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Three periods, first term. Open to Seniors. Professor HARRISON.

456. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Three periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

457. Railroad Transportation.—A consideration of the different systems of railroad rates as affecting the shipment of farm products and the location and development of industries generally. Designed to meet the needs of students in Engineering, Textile Industry, and Agriculture. Three periods, first term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The purpose of the work in this department is to enable the student to read and become acquainted with German, French, and Spanish scientific literature. Grammar is taught only secondarily and as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years work in German is required of students taking the Dyeing course, and it is recommended that the students of this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

460. Beginner's German.—Grammar, composition and translation. Bacon's *German Grammar*. Reader to be selected. Elective for Textile Juniors. Required of Juniors in Dyeing. Both terms, three hours. Assistant Professor HINKLE.

461. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical

German the second term. Gore's *German Science Reader* and Wallentin's *Grundzüge der Naturlehre.* Elective for Textile Seniors. Required of Seniors in Dyeing. Both terms, three hours. Assistant Professor HINKLE.

463. Beginner's French.—Grammar, composition, and translation the first term. Introductory scientific French the second term. Giese's *Graded French Method.* Bowen's *First Scientific French Reader.* Junior elective. Both terms, three hours. Assistant Professor HINKLE.

464. Beginner's Spanish.—Grammar, composition, and translation. Marion y des Garenes' *Introduccion a la Lengua Castellana,* first term; Ramsey's *Elementary Spanish Reader,* second term. Senior elective. Three hours per week, both terms. Assistant Professor HINKLE.

465. Intermediate Spanish.—A continuation of Beginner's Spanish. Designed primarily to develop rapid reading and translation and conversation. A number of easy Spanish stories are read. Some attention is given to composition and letter-writing. Open to students who have had not less than one year's work in the language. Senior elective. Three hours, both terms. Assistant Professor HINKLE.

MILITARY SCIENCE.

480. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company and battalion; ceremonies, including inspection, parade, review and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

481. Tactics.—Theoretical instruction in infantry drill regulations, field-service regulations, map reading, and small-arms firing manual. One period a week. Required of Sophomores. Lieutenant SPURGIN.

TWO-YEAR COURSE IN TEXTILE INDUSTRY.

The two-year course is offered to students who cannot spend the time required for the four-year course, or who have had practical experience in the mill and wish to avail themselves of our facilities for giving instruction in textile work.

III (c). The Two-year Course in Textile Industry.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning	2	2
Weaving	3	3
Textile Designing	2	1
Cloth Analysis	--	1
Mechanical Drawing	2	2
Shop Lectures	2	--
Forge Work	--	2
Algebra	5	5
Plane Geometry	--	
English	3	3
Military Drill	3	3
Totals	22	22

Second Year.

Carding and Spinning	5	5
Weaving	4	4
Textile Designing	2	1
Cloth Analysis	--	1
Dyeing	3	3
Machine-shop Work	2	2
English	3	3
Military Drill	3	3
Totals	22	22

Subjects of Instruction.

Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: classifying the plant; its growth; varieties; ginning, baling, and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers; railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts; speed of parts; production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-book: Taggart's *Cotton Spinning*. Required of first- and second-year students. Mr. DICK.

Weaving.—Lectures on construction of plain, twill, sateen, gingham, pick and pick looms are given; also on construction of dobbies and jacquards.

Lectures begin with the construction of plain loom, first taking up the principal movements in weaving, then the various secondary or auxiliary movements, and the relation and timing of one movement to another. Additional motions and parts required to be added to a plain loom in order to weave twill and sateen cloths. Magazine looms; construction and advantages. Drop box looms; construction of the various motions; arranging colors in boxes; methods of building box chains. Dobby: construction of single and double index; setting, and starting up dobby on loom; fixing dobby. Pick and pick looms: construction of loom; construction of head motion; building box chains to have easy-running loom. Jacquard: single and double lift; construction and tie-up. Weave-room calculations for speed and production; counts of reed and cotton harness. Finishing cotton fabrics. Necessary equipment for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: Nelson's *Weaving, Plain and Fancy*. Required of first- and second-year students. Professor NELSON, Mr. STEED.

Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves; plain; twill; satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves; plain and fancy basket weaves; warp and filling rib weaves. Broken twills; curved twills; corkscrew twills; entwining twills. Granite weaves; satin shading. Combina-

tion of weaves; figured weaving on plain ground. Fancy satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno; honeycomb weaves. Bedford cords and combination with other weaves. Wave design; pointed twills; diamond effects. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp. Cloths ornamented with extra filling. Combination of plain and fancy weaves. Practical application of weaves to fabrics. Advanced designs. Required of first and second year students. Professor NELSON, Assistant Professor HALSTEAD, Mr. STEED.

Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of first- and second-year students. Professor NELSON, Assistant Professor HALSTEAD, Mr. STEED.

DRAWING AND SHOP WORK.

Mechanical Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine. Elementary principles of descriptive geometry; cylinders, cones, and prisms; intersection and development of surfaces; miscellaneous problems. Two periods. Required of first-year students. Mr. BRIGGS.

Forge Work.—Exercises in working with iron, welding; use and care of forge tools and fires. Two periods, second term. Required of first-year students. Mr. WHEELER.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper work. Two periods. Required of second-year students. Mr. PARK.

MATHEMATICS.

Algebra.—Wells's *New Higher Algebra.* A thorough treatment of Elementary Algebra, beginning with simple equations, simultaneous equations and problem solving, involution, evolution, theory of exponents and radicals, quadratic equations, ratio and proportion, binomial theorem, and progression. Five periods, first term. Required of first-year students. Assistant Professor HARRELSON, Mr. JETER, Mr. SMITH.

Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry.* A complete course in Plane Geometry, including numerous original exercises. Five periods, second term. Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion; ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

ENGLISH.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Three hours a week. Required of first-year students. Mr. WEBBER.

Additional Subjects in the Second Year.

Dyeing.—The object of this course is to give the student a sound practical knowledge of the fundamental principles which underlie the arts of bleaching, dyeing, mercerizing, etc., cotton yarns and fabrics. The manipulation of the various machines used in bleaching, dyeing, and mercerizing is carefully explained. The physical and chemical properties of the material to be dyed receive first consideration, followed by a study of the adaptability of water for bleaching, dyeing, mordanting, etc. The practical application of the dyestuffs themselves is treated in the most thorough and detailed manner, *e. g.*, the substantive dyestuffs dyed direct, diazotised and developed, after-treated with metallic salts, topped with basic dyes, etc., the basic dyestuffs, sulphur dyestuffs, indanthrene dyestuffs,

etc. Practice in color-mixing and matching is given. The studen in this way acquires a collection of several hundred dyed sample which, when mounted in his pattern book, serve as a valuable refer ence. The course is supplemented by lectures, which will includ the consideration of many difficult problems that arise in the dye house. Three periods. Required of second-year students. Assistan Professor HALSTEAD.

Machine Drawing.—Sketching and drawing of machine parts principally of textile machinery. Detail working drawings. Th design of cams to give specified motions. Tracing and blue-printing Two periods. Required of Textile Sophomores. Mr. RICHARDSON.

English Composition and Rhetoric.—After a review of the princi ples of English grammar, special attention is given to the selection o subjects, the planning of essays, and the study of words, sentences and paragraphs. Frequent themes are required, the work bein directed mainly upon the mechanics of writing and the making o reports on scientific studies. Required of second-year students Three periods, first term. Assistant Professor PRATT, Mr. WEBBER.

American Literature.—The study of the history of American lit erature is accompanied with the reading and analysis in class o the writings of representative American authors. Essays are base largely upon class and parallel reading. Three periods, secon term. Required of second-year students. Assistant Professor PRATT Mr. WEBBER.

COURSES FOR TEACHERS.*

The courses for teachers are intended for the education of teachers, both men and women, chiefly along industrial lines. Industrial education, particularly in agriculture, is being introduced into our public schools, and there is a constant demand for teachers well trained in these subjects. It is hoped by means of these courses to help supply this demand. Our School Law already requires agriculture to be taught in the public schools, and manual work will doubtless be added. The courses are devoted largely to agriculture and nature study, and include also a review of other public school studies.

Persons already engaged in teaching may, at slight expense of time and money, by means of the short course or Summer Term, make themselves proficient in one or more industrial lines. Persons preparing to teach may take the full courses, and thus become proficient, not only along industrial lines, but also in the other public school branches and in one or more sciences, or in higher mathematics and English. The industrial training given is both practical and theoretical, and is arranged with reference to the present needs of the public schools of North Carolina. The Courses for Teachers are as follows:

*See also Normal Division of Agricultural Course, page 57.

IV. Courses for Rural Teachers.

(a) Two-year Course.
(b) One-year Course.
(c) Four-weeks Summer Course.

IV. (a) TWO-YEAR COURSE.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Physics or Mathematics	5	5
Chemistry	3	3
English	3	3
Botany	3	3
Zoology	--	3
Agriculture	3	--
Plant Propagation	3	--
Vegetable Gardening	--	3
Physiology	--	3
Farm Management	3	--
Totals	23	23

Second Year.

Landscape Gardening	--	3
Practical Pomology	3	--
Soils	3	3
Poultry	3	--
Plant Diseases	2	2
Economic Entomology	--	3
Breeds	--	3
Dairy	3	--
Agriculture	4	4
Elective	4	4
Totals	22	22

IV. (b) ONE-YEAR COURSE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Botany	3	3
Zoology	--	3
Agriculture	3	--
Plant Propagation	3	--
Vegetable Gardening	--	3
Physiology	--	3
Soils	3	3
Poultry	3	--
Breeds	--	3
Dairy	3	--
Elective	5	5
Totals	23	23

THE SUMMER TERM OF AGRICULTURE FOR TEACHERS.

With the establishment of 215 State high schools, in which the most important subject of instruction is agriculture, and with the requirement that this subject be taught also in the common schools, the demand for teachers trained in the sciences upon which agriculture is founded, and in their practical application, has become imperative. The Summer Term of Agriculture has been established to afford teachers the opportunity to equip themselves to meet this demand.

All the resources of the agricultural department of the College in buildings, farms, livestock, and equipment, are used for the benefit of the Summer Term. The entire faculty of this department, so far as needed, form the staff of instructors.

As it is of course impossible adequately to cover all the branches of agriculture in one session of four weeks, the course of study is arranged progressively for four years. Provision is made, however, for the immediate demands upon the teacher by giving in the first year of the course the essentials for successful school instruction in agriculture. A certificate of work done is issued at the end of each session, and upon the completion of the course there is conferred a full certificate which the State Superintendent of Public Instruction agrees to accept in lieu of examination on the subjects taken.

A special number of the College Record is issued in March, giving full information concerning courses of instruction, expenses, and other matters of the Summer Term. A copy of this will be sent upon application to the Registrar of the College.

RULES FOR ADVANCED DEGREES.

Two degrees are conferred: The Engineering Degree to non-resident graduates of the engineering courses, and Master of Science to resident students pursuing graduate work.

ENGINEERING DEGREES.

1. The degree of Civil Engineer, Mechanical Engineer, or Electrical Engineer may be conferred upon graduates of the several engineering departments of the College not sooner than three years after graduation.

2. Each candidate for an engineering degree must file his application for enrolment not later than October 5th.

3. He must file with his application a statement of the work he has done since graduation and the title of the thesis which he will present.

4. The record of the work and the subject of the thesis must be approved by the Faculty's standing committee on graduate students before the applicant will be enrolled as a candidate for a degree.

5. The completed thesis must be submitted in approved form not later than May 1. Reports, designs, or drawings made in the regular course of his employment will not be accepted.

6. A candidate must submit with his thesis tangible records of the work he has done and upon which his application for the degree is based, such records to consist of complete drawings, detailed drawings, photographs, records of tests, or other such matter as will show the character of the work done and indicate the degree of responsibility that has been placed upon him.

7. If the record of the work done be approved and the thesis accepted by the Faculty, the candidate, upon notification, must present himself for examination not later than the Saturday preceding the annual commencement. The examination shall consist of oral questions on the subject-matter of the thesis and on the work done by the candidate since graduation.

MASTER OF SCIENCE.

The degree of Master of Science will be conferred on graduate students who fulfil the following requirements:

1. The candidate must have received the Bachelor's degree from this College or another institution having an equivalent course of study.

2. Not less than two years must intervene between the conferrin of the Bachelor's degree and the Master's degree, unless the candi date has devoted his time exclusively to graduate study.

3. A course of study consisting of one major and two minors aggregating sixteen periods, must be pursued during residence a the College, each period representing not less than 100 hours o actual work.

4. The major subject, covering eight periods, shall be strictl graduate work and selected in that department in which the Bach elor's degree was taken.

5. The two minor subjects, covering four periods each, shall b chosen from departments allied to the department in which th major subject is chosen. The work of a minor subject shall be of grade not lower than that of the Junior year in those departments

6. Work which has been done previous to receiving the Bachelor' degree or which has been accepted as credit towards any degre received shall not be accepted for credit towards the Master's degre at this College.

7. The major and minor subjects must be completed satisfactorily by May 1st preceding the conferring of the degree, at which tim also must be presented in its complete form a satisfactory thesis the theme of which must have been approved by the 5th day o October previous thereto.

8. The candidate must pass a satisfactory oral examination upon his thesis, major and minor subjects, before an examining com mittee composed of the professors in charge of the major and mino subjects, one or more members of the Committee upon Graduat Studies, and one or more other members of the Faculty, said exam ining committee to be appointed by the Faculty upon the nominatio of the Committee upon Graduate Studies.

9. In case the applicant be employed by the College, Experimen Station, or State Department of Agriculture, he shall not be allowe to receive during any year credit for more than eight periods, to b distributed as follows: both minors, the major, or a minor and one half the major. In this connection a year will extend from Com mencement day to Commencement day.

10. No work done as a teacher shall be credited as work toward the degree.

11. At least eight periods must be devoted to work in the labora tory, field, greenhouse, dairy, or barn.

12. The thesis must involve some original work. References t literature should as far as possible be to original sources, and al

citations should follow the rules prescribed for the *Journal of Agricultural Research.*

13. Credit will not be allowed during any year unless the candidate shall have filed with the Registrar an approved course of study by October 5th of that year or a previous year.

14. Candidates for advanced degrees must register by October 5th of each year for which they wish to receive credit.

FORM OF THESIS.

The thesis must be presented on unruled white paper, 8⅛ by 11 inches in size, twenty-pound Persian bond or the equivalent. A suitable title page, printed or typewritten, must be prepared. The thesis must be neatly typewritten, properly paged, leaving a margin of 1½ inches on the left for binding, the writing to be on one side of the page only. All drawings or diagrams must be neatly and carefully prepared, and where the size of paper necessary is larger than that of the page it must be of such size as conveniently to fold in with the thesis.

The thesis shall become the property of the College and will be placed on file.

DONATIONS.

To the Department of Electrical Engineering and Physics.

Through the bequest of the late William Kearny Carr this Department received the entire equipment of his excellent private physical laboratory. This contains a large number of pieces of very fine apparatus, particularly for the study of sound, light, and electrical radiations. This apparatus has been installed in a separate room fitted up for it and is to be designated as the William Kearny Carr Physical Laboratory.

To the Textile Department.

American Enamel Company, Providence, R. I.—Lease and dye-rods.
American Moistening Company, Boston, Mass.—One hygrometer.
Bliss, Fabyan & Co., New York.—Sample fabrics.
Easton & Burnham Company, Pawtucket, R. I.—One reel.
Emmons Loom Harness Company, Lawrence, Mass.—Loom harness and reels.
Felton Brush Company, Atlanta, Ga.—Loom and other brushes.
Foster Machine Company, Westfield, Mass.—One Foster winder.
Hampton Company, Easthampton, Mass.—Mercerized yarns.
Hemphill Manufacturing Company, Pawtucket, R. I.—One Banner knitting machine.
Howard Bros. Manufacturing Company, Worcester, Mass.—Heddles.
Scott & Williams Company, Boston, Mass.—One knitting machine.
Southern Novelty Company, Hartsville, S. C.—Paper tubes and cones.
Steel Heddle Manufacturing Company, Philadelphia.—Heddles and heddle frames.
United States Bobbin and Shuttle Company, Providence, R. I.—Shuttles.
Wildman Manufacturing Company, Norristown, Pa.—One ribber.
American Dyewood Company, New York.—Sample dyes.
Atteaux & Co., Inc., Boston, Mass.—Sample dyes.
Berlin Aniline Works, New York.—Collection of shade cards.
Schoellkoff Aniline and Chemical Works, Inc., Buffalo, N. Y.—Sample dyes.
Solway Process Company, New York.—Soda, ash, caustic soda, etc.
Marsden, Orth & Hastings Company, Boston, Mass.—Sample dyes.
Canadian Textile Journal, Montreal, Canada.
Textile Manufacturer, Charlotte, N. C.

Southern Textile Bulletin, Charlotte, N. C.
Mill News, Charlotte, N. C.
Wool and Cotton Reporter, Boston, Mass.
Fiber and Fabric, Boston, Mass.
Textile World Journal, New York.
New York Journal of Commerce, New York.

To the Library.

Curtis, Robert S.—*Live-stock Judging.*
Sir Gilbert Parker.—*The World in the Crucible.*
Sir Gilbert Parker.—*Germany's Violations of the Laws of War.* 1914-1915.
Hueffer, Ford M.—*Between St. Denis and St. George.*
Lord Syndenham of Combe.—*India and the War.*
Waxweiler, Enrile.—*Belgium: Neutral and Loyal.*
Publishers.—*Replies and Decisions of the New York Journal of Commerce.*
Poe, Clarence.—*How Farmers Coöperate and Double Their Profits.*
Poteat, William L.—*The New Peace.*
Fulton, Harry R.—*The Essentials of Botany* (2 vols.).
Stevens, Thomas W.—*The Pageant and Mask of St. Louis.*
Harper, W. A.—*The Making of Men.*
Publishers.—*Accident, Prevention, and Relief.*
Fielde, Adele M.—*Parliamentary Procedure.*

To the Department of Horticulture.

W. C. Piver.—$25 towards a power sprayer.

To the Poultry Science Department.

Collis Company, Clinton, Ia.—One sticking knife, one blood cup, one picking shackle.
The Star Egg Carrier and Tray Manufacturing Company, Rochester, N. Y.—Egg crates.
North Star Egg Case Company, Quincy, Ill.—Egg cases.
V. W. Winchester, Baltimore, Md.—Egg case cushions.
Frank Gaylor, New York.—Firefly egg tester.
J. Bolgiano & Son, Baltimore, Md.—Sanitary drinking fountains, sanitary feed troughs, and brooding coops.
LaFore Foster Company, Philadelphia, Pa.—Egg cases for parcel post.
The Hartley Steel Crated Box Company, Saginaw, Mich.—Egg cases.

The Standard Paint Company, New York City.—Samples rubberoid roofing.

The Edwards Manufacturing Company, Cincinnati, O.—Samples metal shingles.

Indiana Steel Wire Company, Muncie, Ind.—Samples wire fencing.

Wilson Bros., Easton, Pa.—Crown bone-grinder.

Weiss-Peterson Box Company, Cairo, Ill.—Egg cases.

International Hover Manufacturing Company, Browns Mills, N. J.—One incubator, one six-in-one exerciser.

To the Department of Mechanical Engineering.

William C. Robinson & Son Co.—Oil at various times.

Evinrude Motor Company.—One Evinrude row-boat motor.

American Vulcanized Fibre Company.—Exhibit board of articles made from vulcanized fibre.

Catalogue Equipment Company.—Additional volumes.

Pike Manufacturing Company.—Exhibit board of cutting stones and wheels.

S. C. Johnson Company.—Exhibit board of woods.

United States Department of the Interior.—Board of American woods.

Peerless Rubber Manufacturing Company.—Exhibit board of packings.

American Injector Company.—A sectioned injector.

American Steam Gauge and Valve Manufacturing Company.—Working parts of American ideal steam trap.

Pressed Metal Radiator Company.—A pressed metal radiator for testing purposes.

The C. E. Squires Company.—A Squires sectioned steam trap.

Reliance Steam Gauge and Valve Company.—One sectioned steam trap.

Clipper Belt Lacer Company.—New model belt lacer.

Joseph Dixon Crucible Company.—Exhibit of products and a board showing the evolution of the lead pencil.

V. D. Anderson Company, Cleveland, O.—Sectioned steam trap.

National Tube Company, Pittsburg, Pa.—A large chart showing their products.

B. F. Goodrich Rubber Company.—A photograph of their plant.

Carborundum Company.—Samples of carborundum and aloxite.

The Dole Valve Company.—Sectioned frictional valve for vapor steam heating.

Wood & Sons.—Three foundry flasks.

Magazines and literature:

Heating and Ventilating Magazine.
Refrigerating Magazine.
Plumbing and Heating Magazine.
Southern Engineer, Atlanta.
National Builder, Chicago.
American Artisan and Hardware Record.
The Dodge Idea.

Trade papers from the following manufacturers: J. G. Brill Company, Philadelphia; Sullivan Machinery Company, Chicago; Goldschmidt Thermit Company, New York; Henry Disston Company, Philadelphia; Underfeed Stoker Company of America, Chicago; E. F. Houghton, Philadelphia; Joseph Dixon Crucible Company, Jersey City, N. J.; Cleveland Crane and Engineering Company, Cleveland; Cleveland Twist Drill Company, Cleveland; Hyman Supply Company, New Bern, N. C.; W. S. Tyler Company, Cleveland.

Literature for class work from The American Radiator Company, Philadelphia; American Injector Company, Detroit, Mich.; Bessemer Gas Engine Company, Grove City, Pa.; Dole Valve Company, Chicago; Reading Iron Works, Reading, Pa.; Association of American Portland Cement Manufacturers.

CATALOGUE OF STUDENTS.

GRADUATES.

Name.	*Postoffice.*	*Course.*
Enos Clarkson Blair, B.S.,	Raleigh,	Agr.
Hermon Burke Briggs, B.E.,	West Raleigh,	M. E.
George Cleveland Buck, B.A.,	Grimesland, R. 2,	Agr.
Everett Hanson Cooper, B.S.,	West Raleigh,	Agr.
Henry Leon Cox, B.S.,	West Raleigh,	Chem.
Richard Oliver Cromwell,	West Raleigh,	Agr.
Charles Webb Davis, A.B.,	Beaufort,	C. E.
John Isaac Handley, D.V.M.	West Raleigh,	Agr.
Thomas Roy Hart, B.E.,	Monroe,	Tex.
Claude Jacques Hayden, B.S.,	West Raleigh,	Agr.
Vernon Ray Herman, B.S.,	West Raleigh,	Agr.
Fielding Ficklen Jeter, A.M.,	West Raleigh,	C. E.
Harvey Langill Joslyn, B.S.,	West Raleigh,	Agr.
Robert Vernon Knight, B.S.,	Raleigh,	Agr.
Samuel George Lehman, B.S.,	West Raleigh,	Agr.
Rowland Willis Leiby, B.S.,	Raleigh,	Agr.
James Richard Mullen, B.S.,	West Raleigh,	Chem.
Edgar Byron Nichols, B.E.,	West Raleigh,	M. E.
Roscoe Edward Parker, A.B.,	Raleigh,	Agr.
Frank Wilson Procter, B.E.,	Raleigh,	E. E.
John Mercer Reeves, A.B.,	Mount Airy,	Tex.
Archie Knight Robertson, B.S.,	West Raleigh,	Agr.
James Blaine Scarborough, A.M.,	West Raleigh,	C. E.
Leon Jacob Schwab, B.E.,	Savannah, Ga.,	C. E.
Hubert Zeigler Smith, A.B.,	West Raleigh,	Chem.
Herbert Spencer, B.S.,	West Raleigh,	Agr.
Jeffrey Franklin Stanback, Jr., A.B.,	Raleigh,	Chem.
Ernest Elwood Stanford, B.S.,	West Raleigh,	Agr.
Herbert Lee Taylor, B.E.,	Baltimore, Md.,	M. E.
Walter Clyburn Taylor, B.E.,	Fall River, Mass.,	Tex.
John Jackson Wells, B.E.,	Rocky Mount,	C. E.
Buxton White, B.S.,	West Raleigh,	Agr.
John Spicer Wilson, B.E.,	Winston-Salem,	E. E.

SENIOR CLASS.

Name.	*Postoffice.*	*Course.*
Claude Shuford Abernethy,	Hickory,	M. E.
Oliver Stanhope Anthony,	Shelby,	Tex.
Joseph Alexander Ardrey,	Fort Mill, S. C.,	M. E.
Charles Vernon Baker,	Raleigh,	C. E.
Fred Allen Baker,	Kings Mountain,	E. E.
Jere Wilson Bason,	Swepsonville,	Agr.
Marvin Eddleman Beatty,	Charlotte, R. 29,	C. E.
Johnnie Samuel Bennett,	Morehead City,	E. E.
James Shepherd Bonner,	Washington,	E. E.
Rodney Law Boylin,	Wadesboro,	Agr.
Clay Dwight Brittain,	Summerfield,	C. E.
James Heber Brooks,	Grifton,	Agr.
Ralph Brooks,	Alliance,	Agr.
Thomas Westmore Brooks,	Stem,	M. E.
Claudius LeRoy Carlton,	Boykins, Va.,	E. E.
Jay Victor Champion,	Raleigh,	M. E.
Louis Gorham Cherry,	Raleigh,	C. E.
Clete Walton Clark,	Troy,	Agr.
John Calhoun Collier, Jr.,	Goldsboro,	M. E.
William Shaw Corbitt,	Henderson,	M. E.
Sherman Grady Crater,	Cycle,	Agr.
Sidney Mott Credle,	Swan Quarter,	C. E.
Chester Hane Crowell,	Newton,	M. E.
Robert Vernon Davis,	Fremont,	E. E.
John Alexander Farrior,	Raleigh, R. 4,	Agr.
Matthew Maury Fontaine,	Woodsdale,	E. E.
John Alexander Frazier,	Kings Creek,	C. E.
Zebulon Clifton Gardner,	Shelby, R. 6,	Agr.
Amzi Nealy Goodson,	Concord,	E. E.
Kenneth Lee Greenfield,	Kernersville,	Agr.
Robert Williams Hamilton, Jr.,	Jonesville, S. C.,	Agr.
William Stephen Haywood,	Mount Gilead,	M. E.
Leonard Orr Henry,	Gastonia,	E. E.
Edgar Allen Hester,	Whiteville,	E. E.
Robert Hugh Hill,	Beaufort,	M. E.
Ralph Hinton Hodges,	Washington,	Agr.
Thomas Hall Holmes, Jr.,	Goldsboro,	E. E.
Dean Roney Holt,	Graham,	M. E.
Paul Noble Howard,	Kinston,	C. E.

Name.	*Postoffice.*	*Course.*
John LeBon Jenkins,	Charlotte,	E. E.
Sidney Earle Jennette,	Lake Landing,	C. E.
Leander Brownlow Johnson,	Hendersonville,	Chem.
Victor Allison Johnston,	Mooresville,	Agr.
Rex Livingston Kelly,	Sanford,	E. E.
Woodford Armstrong Kennedy,	Warsaw,	Tex.
William Pendleton Kennedy,	Warsaw,	E. E.
Paul Hanner Kime,	Greensboro,	Agr.
Robert Opie Lindsay,	Madison,	Tex.
James Walter McLeod,	Rowland,	Agr.
Joseph Henry Mason,	Charlotte,	Tex.
Sherrod Ervin Menzies,	Hickory,	M. E.
John Daniel Miller,	New London,	C. E.
Tommy Lee Millwee,	Charlotte,	E. E.
Charles Alfred Moore,	Kinston,	E. E.
John Frank Neely, Jr.,	Pineville,	Agr.
David Benjamin Nooe,	Pittsboro,	Agr.
Reid Allison Page,	Biscoe,	Agr.
Thomas Clayton Pegram,	Asheville, R. 4,	Tex.
John Bailey Pridgen,	Elm City,	C. E.
Jack Addison Purefoy,	Asheville,	Agr.
Parker Royall Rand,	Garner, R. 1,	Agr.
Henry Rankin,	Gastonia,	M. E.
Lewis Banks Ray,	Graham,	M. E.
David Miller Rea,	Matthews,	C. E.
Hugh Calvin Rea,	Matthews,	Agr.
Wallace Whitfield Riddick,	West Raleigh,	C. E.
Ray Miller Ritchie,	Concord,	Agr.
Philip Austin Roberts,	Red Springs,	C. E.
John Paul Robertson,	Rowland,	Agr.
Zeb Blaine Robinson,	Weaverville,	E. E.
William Haywood Rogers, Jr.,	Raleigh,	C. E.
Lindley Murray Rowe,	Burgaw,	C. E.
Augustine Joseph Russo,	Portsmouth, Va.,	C. E.
Clement Oscar Seifert,	New Bern,	C. E.
Brooks Walker Setzer,	Troutman,	E. E.
Karl Sloan,	Statesville,	C. E.
Bascom Pierce Smith,	Guilford College,	M. E.
Paul Elwood Snead,	Reidsville,	E. E.
John Henry Speas,	East Bend,	Agr.
Wilbur Burnette Sumner,	Asheville,	E. E.
Reuben L. Tatum,	Cooleemee,	C. E.

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Alfred Tennyson Taylor,	McCullers,	Agr.
Grover William Underhill,	Wendell,	Agr.
Jacob Osborne Ware,	Kings Mountain,	Agr.
George Henderson Webb,	Morehead City,	C. E.
Lidey Rand Wellons,	Smithfield, R. 1,	Agr.
Harry Graves Wharton,	Greensboro,	Agr.
John Franklin Williams,	Bessemer City,	E. E.
Peter McKellar Williams, Jr.,	Fayetteville,	Agr.
Herman Elton Winston,	Youngsville,	Tex.
James Harvey Withers, Jr.,	Broadway,	Agr.

JUNIOR CLASS.

John Welsford Artz,	Old Fort,	Agr.
John William Avera,	Smithfield, R. 1,	Agr.
John Robin Baucom,	Raleigh, R. 2,	Agr.
Tyson Yates Blanton,	Mooresboro,	Agr.
Zeb Boyce Bradford,	Huntersville,	Tex.
William Staley Bridges,	Wakefield, R. 1,	M. E.
Noah Burfoot, Jr.,	Elizabeth City,	Tex.
Almon Hill Carter,	Wallace,	Agr.
DaCosta Moore Clarke,	Asheville,	E. E.
Ambrose Schenck Cline,	Lincolnton,	Agr.
James Wesley Cooper,	Henderson,	Tex.
Milton Lee Correll,	Lumberton,	Chem.
Francis Edwin Coxe,	Red Springs,	E. E.
Harry Crawford,	Waynesville,	E. E.
William Pressley Davis,	Stovall,	C. E.
Albert George Day,	Trenton, S. C.,	E. E.
William Carter Dodson,	Greensboro,	Tex.
Mynar Cecil Donnell,	Greensboro, R. 4,	Agr.
William Henry Elliot,	Thornwall,	Agr.
Frederick Carlton Gardner,	Rocky Mount,	C. E.
John LeRoy Gregson, Jr.,	Elizabeth City,	C. E.
Robert Vance Grindstaff,	Asheville,	M. E.
Frank Joshua Haight,	Balsam,	E. E.
Carl Rush Harris,	Mount Gilead,	Tex.
John Fleming Harris,	Mapleville,	M. E.
Adolph Theodore Hartmann,	Charlotte,	C. E.
Henry Wadsworth Hayward,	Mount Gilead,	M. E.
John Wade Hendricks,	Cana, R. 2,	Agr.

Name.	*Postoffice.*	*Course.*
Bruce Dunston Hodges,	Washington,	C. E.
Edison Parker Holmes,	North Wilkesboro,	E. E.
Edward Holland Holton,	Winston-Salem,	Agr.
Robert Mullen Hooper,	Beaufort,	E. E.
William Ransom Hoots,	Jennings,	Agr.
Frank William Howard,	Bridgeport, Conn.,	C. E.
John Eli Ivey,	Norwood,	Agr.
Lona Alvin Jaynes,	Fonta Flora,	M. E.
Paul Worthy Johnson,	Raeford,	Agr.
Walter Myatt Johnson,	Chalybeate Springs,	E. E.
George Harold Lawrence,	Wickford, R. I.,	Agr.
Joseph Lee, Jr.,	Landrum, S. C.,	Agr.
Henry Albert Lilly,	Mount Gilead,	Agr.
James Robert McArthur,	Greenville, R. 6,	Agr.
Robert Wissner McGeachy,	Raleigh,	C. E.
Jacob Wyatt McNairy,	Lincolnton,	E. E.
Frank Coble McNeill,	Cameron,	C. E.
Elbert McPhaul,	Red Springs,	Agr.
Mark Struve Martenet,	Acme,	Agr.
William Emery Matthews,	Maxton, R. 4,	C. E.
Morell Battle Maynard,	Kerr,	M. E.
Gordon Kennedy Middleton,	Warsaw,	Agr.
Ewing Stephenson Millsaps, Jr.,	Statesville,	Agr.
Todd Bowman Misenheimer,	Charlotte,	Tex.
Samuel John Mitchiner, Jr.,	Garner,	M. E.
Daniel A. Monroe,	Eagle Springs,	E. E.
William Fowler Morrison,	Wilmington,	Tex.
Edward Moseby Murray,	Charlotte,	Tex.
Zachariah Ennis Murrell, Jr.,	Wilmington,	Agr.
James Carter Perry,	Durants Neck,	M. E.
Julian Hawley Poole,	Jackson Springs,	Agr.
Walter Roscoe Radford,	Cane River,	Agr.
Horace Bascomb Robertson,	Asheville,	Tex.
James Henry Rogers,	Hurdle Mills,	Agr.
Henry Fred Rush,	Raleigh,	Agr.
Charles Reid Russell,	Denton,	C. E.
David Morton Saint Sing,	Wise,	M. E.
David Floyd Sasser,	Goldsboro,	M. E.
William Kerr Scott,	Haw River, R. 1,	Agr.
Nathan Stowe Sharp,	Waterloo, Iowa,	Tex.
Thomas Park Simmons,	Asheville,	C. E.
William Barnhard Stainback,	Henderson,	Tex.
John Alpheus Stallings,	Durham, R. 6,	C. E.

Name.	*Postoffice.*	*Course.*
Paul Ernscliffe Stallings,	Concord, R. 6,	Agr.
Charles Whitson Stanford, Jr.,	Teer, R. 1,	Agr.
Reuben Bennett Stotesbury,	Swan Quarter,	Agr.
Michael Alfred Stough,	Cornelius,	Tex.
Louis Joseph Swink,	Fentress, Va., R. 2,	Tex.
Gurdon Lucius Tarbox,	Georgetown, S. C.,	M. E.
Ernest Craig Turner, Jr.,	Mebane,	Agr.
Napoleon Bonaparte Tyler,	Rich Square,	Agr.
Lonnie Bascom Ward,	Mocksville, R. 2,	E. E.
Nathaniel Warren Weldon,	Norlina, R. 1,	Agr.
Fred Murrow West,	Wests Mill,	M. E.
Druid Emmet Wheeler,	Asheville,	Tex.
George Whitson,	Swannanoa,	E. E.
John Francis Williams, Jr.,	Charlotte,	Chem.
Roy Lee Williamson,	Raleigh,	C. E.
Louis Ernest Wooten,	Fountain,	C. E.
Robert Cleveland Young,	Asheville,	Agr.

SOPHOMORE CLASS.

Edward Andrew Adams, Jr.,	Raleigh,	M. E.
Bonva Closson Allen,	Clayton, R. 2,	M. E.
Orla Finger Asbury, Jr.,	Charlotte,	E. E.
Wilburn Clegg Austin,	Indian Trail,	M. E.
George Ganzer Avant,	Wilmington,	E. E.
Leon Waverly Bailey,	Smithfield,	E. E.
Bruce Crayton Baker,	Fairmont,	Tex.
George Garland Baker,	Washington,	M. E.
Louis William Baker,	Arlington, N. J.,	E. E.
Robert Morisey Barden,	Warsaw,	C. E.
James Monroe Barnhardt,	Harrisburg, R. 2,	Agr.
Pierre McFarland Bealer, Jr.,	Washington, D. C.,	Agr.
Thomas Ambrose Belk,	Mount Holly,	Agr.
Frederick Neil Bell,	Concord,	E. E.
Jay Lang Benbow,	Oak Ridge,	Agr.
Wilmer Zadock Betts,	Raleigh,	C. E.
George Benjamin Blum,	Reidsville, R. 2,	Agr.
Cecil Theodore Bost,	Hickory,	M. E.
Frederick Jones Bounds, Jr.,	Weldon,	Tex.
Dana Edgar Bowen,	Burgaw,	Agr.
Ebenezer Erskine Boyce,	Gastonia,	Tex.
Armistead Jerman Boyd,	Warrenton,	Tex.

Name.	*Postoffice.*	*Course*
Frank Bishop Brinn,	Hertford,	C. E.
Bryce Benjamin Brown,	Greenville,	E. E.
Jesse Herman Chappell,	Rich Square, R. 1,	Agr.
Marsh Hutzler Chedester,	Asheville,	E. E.
Harper Nicholson Cherry,	Hendersonville,	Agr.
Giles Ashton Clute, Jr.,	Clinton,	Tex.
Robert Brice Cochran,	West End,	M. E.
James Kirk Coggin,	New London, R. 2,	Agr.
David Stanton Coltrane,	Jamestown,	Agr.
William Thomas Combs,	Leaksville,	C. E.
Charles Kearney Cooke, Jr.,	Louisburg,	M. E.
George Chandler Cox,	Cullowhee,	E. E.
Russell Alexander Crowell,	Acton,	Agr.
Willie Anderson Davis,	Lucama,	Agr.
Paul Wright DeLaney,	Matthews, R. 27,	M. E.
Moses Moore Dew,	Wilson,	Agr.
William Sergeant Dixon, Jr.,	Leasburg,	M. E.
E. Marion Doar, Jr.,	Georgetown, S. C.,	C. E.
Frederick Emmett Ducey,	Portsmouth, Va.,	Agr.
Alvah Dunham,	White Oak, R. 1,	Agr.
James Davidson Eborn, Jr.,	Bath,	Agr.
Thomas Benjamin Elliott,	Sanford, R. 3,	Agr.
William Harry Entwistle,	Rockingham,	Tex.
Paul Brandon Fleming,	Cleveland,	E. E.
Landon Cabell Flournoy,	Charlotte,	E. E.
Daniel Robert Steele Frazier, Jr.,	Kings Creek,	C. E.
Edwin Wood Fuller,	Raeford,	Tex.
Early Baxter Garrett,	Burlington, R. 7,	Agr.
Benjamin Duke Glenn,	Greensboro,	Tex.
Harry Percy Grier, Jr.,	Statesville,	C. E.
Walter Durham Hampton,	Brevard,	E. E.
Thomas Wheeler Hancock, Jr.,	Winston-Salem,	Agr.
Abram Edgar Harshaw,	Murphy, R. 2,	M. E.
John Ruby Hauser,	North Wilkesboro,	E. E.
Edwin Byron Haynes,	Raleigh,	E. E.
Charles Estes Henderson,	Henderson,	E. E.
James Robert Herron,	Charlotte,	E. E.
John Moore Gray Hicks,	Wilmington,	Agr.
Claud Revere Horn,	Mocksville,	E. E.
David Lutterloh Hunt,	Brevard,	M. E.
James Lawrence Hutton,	Greensboro,	M. E.
John Jacob Jackson,	Kinston, R. 4,	Tex.

Name.	*Postoffice.*	*Course*
Shober Keaner Jackson,	High Point, R. 2,	Agr.
Murray Gibson James,	Springer,	Agr.
Cary Jeffress,	Fletcher, R. 1,	M. E.
William Cooke Jones,	Raleigh,	M. E.
Noble Lewis Jordan,	Hendersonville, R. 3,	M. E.
Winfield Kerr Keeter,	Marion,	E. E.
Robert Pearson Kelly,	Cleveland,	M. E.
Lyman Kiser,	Reepsville,	Agr.
James Thomas Larkins, Jr.,	Garland,	C. E.
Frank Lee Lassiter,	Wagram, R. 1,	M. E.
William Daniel Lee,	Asheville,	Agr.
William Edward Leeper,	Belmont,	C. E.
Elbert Francis Lewis,	Greensboro,	C. E.
Robert Lingle Lewis,	Gastonia, R. 2,	C. E.
James Wilson McArver,	Gastonia,	Tex.
Zeb. Arch McCall,	Elrod,	Agr.
James Edgar MacDougall,	Amesbury, Mass.,	Tex.
Neill Alexander McEachern,	St. Pauls,	Agr.
Francis Kelton McKoy,	Wilmington,	Agr.
Robert Edward Madison,	Webster,	M. E.
Charles Briggs Malone,	Providence, R. I.,	M. E.
Thomas Jackson Martin, Jr.,	Pelham,	M. E.
Peyton Howard Massey,	Zebulon, R. 2,	Agr.
Elbert Maxwell,	Seven Springs,	E. E.
Gratz Brown Millsaps,	Statesville,	E. E.
Eugene James Moore,	Winston-Salem,	Agr.
Ed. Cranmer Newton,	Southport,	Agr.
John Andrew Northcott, Jr.,	Winton,	E. E.
Henry Blount Osborne,	Clyde,	Agr.
Thomas Carter Osborne,	Clyde,	Agr.
Walter Leak Parsons, Jr.,	Rockingham,	Tex.
Joseph Anderson Patrick,	Lowell, R. 1,	Agr.
Robert James Pearsall,	Dunn,	E. E.
Herbert Flavius Pfaff,	Tobaccoville,	Agr.
Junius Bishop Powell,	Roxobel,	Agr.
William Weyman Price,	Raleigh,	Agr.
Frank Hitch Pritchard,	Swansboro,	E. E.
Joseph Lucius Reed,	Asheville, R. 2,	Agr.
Victor Arthur Rice,	Southport,	Agr.
Wilfred Herndon Robbins,	Raleigh,	Agr.
John Franklin Rockett,	Randleman, R. 1,	E. E.

Name.	*Postoffice.*	*Course.*
John Cole Rose,	Conway,	Agr.
James Malcolmson Rumple,	Davidson,	M. E.
Williamson Marcellus Russ,	Raleigh,	Agr.
Daniel Russell Sawyer,	Wilmington,	Agr.
Allen Ernest Smith,	Hope Mills, R. 2,	Agr.
Frank Paul Spaulding,	Bristol, Va.,	C. E.
Ben Bryan Stockard,	Greensboro,	E. E.
James Jeffries Sykes,	Charlotte,	E. E.
Leslie Lancaster Taylor,	Rutherfordton,	Tex.
Ben Temple,	Danville, Va.,	Agr.
John Simpson Tennent,	Asheville,	C. E.
Horace Carter Thomas,	Cheoah,	C. E.
Louis Dale Thrash,	Asheville, R. 3,	Agr.
William Lawrence Trevathan,	Rocky Mount,	C. E.
George Boston Troxler,	Brown Summit,	Agr.
Suade Gower Walker,	Rutherfordton, R. 4,	Agr.
George Spencer Warren,	Wilson,	Agr.
Sylvester Hassell Warren,	Hurdle Mills, R. 2,	Agr.
John Sanford Warwick,	Laurinburg, R. 2,	E. E.
James Thaddeus Weatherly,	Greensboro, R. 1,	Agr.
Percy Stanley White,	Greensboro,	Agr.
Philip Chaffin Yarboro,	Osgood,	Agr.
Yaro Zenishek,	Raleigh,	M. E.

FRESHMAN CLASS.

Name.	*Postoffice.*	*Course.*
Albertus Corbett Alexander,	Swannanoa,	Agr.
Bennett Serrill Arnold,	Waynesville,	M. E.
Joseph Wilson Austin,	Charlotte,	Agr.
Wade Vance Baise,	Pelham, R. 1,	C. E.
Duncan Patterson Baldwin,	Ellerbe,	E. E.
Percy Owen Barber,	Goldston,	C. E.
Gabriel Francis Barbrey,	Clinton,	C. E.
Wilbur Barnes,	Clayton,	Agr.
Joseph Branch Batchelor,	Raleigh,	Tex.
Samuel Otto Bauersfeld, Jr.,	Hamlet,	Agr.
Andrew William Bengtson,	Norfolk, Va.,	E. E.
James Cyrus Black, Jr.,	Harrisburg,	Chem.
Herman Marmaduke Blake,	Chadbourn,	M. E.
Balfour Cowan Blalock,	Norwood,	M. E.
Halbert Johnston Blue,	Aberdeen,	Agr.

Name.	*Postoffice.*	*Course.*
Glenn Lyon Bobbitt,	Henderson,	M. E.
John Henry William Bonitz,	Wilmington,	C. E.
Barrett Woodward Boulware,	Black Mountain,	E. E.
William Croswell Bowen,	Raleigh,	Agr.
Robert Edward Brackett,	Nealsville,	Agr.
Clarence Anderson Brame,	Kenly,	Agr.
William Edward Bratten,	Princess Anne, Va.,	Agr.
John Irving Brooks,	Roxboro,	M. E.
James Edward Brown,	Greensboro,	Agr.
Dallas Marion Buchanan,	Oxford,	Agr.
George Edward Bush,	Granite Falls,	Tex.
Theodore Jackson Caldwell,	Huntersville,	M. E.
Percy Listle Canady,	Wilmington,	Tex.
Exum Anderson Chamblee,	Zebulon,	E. E.
Henry Burdette Chapin,	Aurora,	Agr.
John Frederick Clark,	Greensboro, R. 3,	Agr.
George Latta Clement,	Asheville,	Agr.
James Harold Click,	Elkin,	Agr.
William Henry Clinard, Jr.,	Winston-Salem,	Tex.
John Baptiste Clute,	Clinton,	C. E.
Robert Lamar Cochrane, Jr.,	Charlotte,	Tex.
William Marion Coffin,	Greensboro, R. 1,	E. E.
Robert Stuart Collins,	Catharine Lake,	E. E.
Cecil Edwards Cooke,	Graham,	Agr.
John Richard Cornwell,	Lincolnton, R. 1,	Agr.
William Howard Corpening,	Worry,	Agr.
Jonathan Evans Courtney,	Fayetteville,	Agr.
George Clingman Crawford,	Sugar Hill,	Agr.
John Robinson Croom,	Magnolia,	Agr.
Walter Brooks Cross,	Huntersville, R. 20,	Tex.
William Roy Cuthbertson,	Candler, R. 2,	E. E.
Willie Josiah David,	Dillion, S. C.,	Agr.
Harold Wilson Davis,	Morganton,	Tex.
Joseph Jonathan Davis,	Louisburg,	Tex.
Dalton Dennis Dixon,	Bessemer City,	E. E.
Drew Edward Dixon,	New Bern, R. 2,	Agr.
Hugh Woody Dixon,	Elkin,	Agr.
LeRoy Dock,	Balsam,	Agr.
Willis Frank Dowd, Jr.,	Charlotte,	Tex.
Harold Stuart Drew,	Union, S. C.,	Chem.
Julian Carrol Dunlap, Jr.,	Norwood,	Agr.
John Dixon Edwards,	Snow Hill,	Agr.

Name.	*Postoffice.*	*Course.*
Lawrence Zollie Egerton,	Louisburg,	Tex.
Charles Wesley Eure,	Halifax, R. 1,	Tex.
William Haywood Exum,	Stantonsburg,	Agr.
Charles Jackson Fetner,	Hamlet,	M. E.
Arthur Crawford Foster,	Atlanta, Ga.,	Agr.
Furney Ruffin Fountain,	Catharine Lake, R. 1,	E. E.
George Washington Frederick, Jr.,	Wilmington,	C. E.
John Gatling,	Raleigh,	E. E.
Carl Jack Goldston,	Goldston,	C. E.
Howard Henley Gordon,	Raleigh,	Agr.
Myron Green,	Marshville, R. 1,	E. E.
Thurman Morris Gregory,	Shiloh,	C. E.
Jamie Griggs,	Wadesboro, R. 2,	M. E.
Henry Spurgeon Grose,	Loray, R. 1,	Agr.
Dennis Henry Hall, Jr.,	High Point,	Agr.
Levis Wilson Handley,	Raleigh,	Agr.
William Guy Hargett,	Comfort, R. 2,	Agr.
Forrest Elliott Harrell,	Sunbury,	E. E.
David Page Harris,	Arden,	Agr.
James Shoffner Hathcock,	Norwood,	Agr.
Jesse Meachem Henley,	Guilford College,	Agr.
Harry Lee Herman,	Conover, R. 1,	Agr.
Marvin Brown Hodges,	Washington, R. 1,	Agr.
David Henry Hodgin,	Red Springs, R. 1,	Agr.
William Herbert Hodgin,	Jamestown,	Tex.
Roy Lee Holland,	Winston-Salem, R. 7,	Agr.
Solomon Linn Homewood,	Burlington, R. 1,	Agr.
Raymond Bright Hooker,	Snow Hill, R. 3,	Agr.
Howard Oburn Hooper,	Cullowhee,	Agr.
Exum Boyd Horton,	Raleigh,	E. E.
Alvin Hix Howell,	Goldsboro,	C. E.
Hilton Hudnell,	Washington,	Agr.
Arthur Lee Humphrey,	Wilmington,	E. E.
Henry Jackson Hunt, Jr.,	Raleigh,	E. E.
Eugene Carl Jernigan,	Benson,	Agr.
John Alfred Johnston, Jr.,	Weldon,	Agr.
William Daniel Johnston,	Washington,	E. E.
Fred Ward Jones,	Grimesland,	Chem.
William Nathaniel Henry Jones,	Raleigh, R. 1,	Agr.
Charles Leslie Keerans, Jr.,	Charlotte,	Agr.
Julian Faison Keith,	Wilmington,	Agr.
Clyde Allred King,	Greensboro,	Chem.

Name.	*Postoffice.*	*Course.*
Frank Fuller King,	Statesville, R. 5,	Agr.
Charles Dickerson Kirkpatrick,	Charlotte, R. 2,	Agr.
Robert Arthur Kohloss, Jr.,	Salisbury,	Chem.
Zach. Taylor Koonce, Jr.,	Comfort,	Agr.
Harry Vann Latham,	Belhaven, R. 1,	Agr.
Joel Brevard Lawrence,	Statesville, R. 5,	Agr.
Charlie Riley Leonard,	Lexington, R. 3,	Agr.
James Gilmore Leonard,	Lexington, R. 1,	E. E.
Willie Ernest Leonard,	Lexington, R. 3,	Agr.
Archibald Gregory Lewis,	Stovall,	Chem.
Almon Kemp Lincoln,	Pittsfield, Mass.,	M. E.
Robert Floyd Lippard,	Lincolnton,	Tex.
William Carey Lloyd,	Chapel Hill, R. 3,	Tex.
Clingman Benton Long,	Charlotte, R. 8,	M. E.
Forrest Bainie Long,	Charlotte, R. 3,	C. E.
Paul Hedrick Long,	Thomasville, R. 3,	E. E.
Paul Thomas Long,	Jackson,	Agr.
Alexander Bryan McCormick,	Rowland,	Agr.
Hammond Springs McCoy,	Huntersville, R. 20,	Tex.
Ralph McDonald,	Raleigh,	Tex.
Homer Alison McGinn,	Charlotte,	Tex.
Harry Galland McGinn,	Charlotte, R. 3,	Tex.
Hal Lyndon McKee,	Sylva,	E. E.
Neill Archibald McKeithan, Jr.,	Carthage,	C. E.
John Dwight McKey,	Plant City, Fla.,	C. E.
Alexander Armstrong McLendon,	Ashton,	E. E.
Cary Stamey McLeod,	Jackson Springs,	Agr.
Ralph Whatley Malone,	Goldsboro,	C. E.
Benjamin Woodman Manier,	Jacksonville, Fla.,	M. E.
Allan Charles Martin,	Winston-Salem,	Tex.
Melville Lee Matthews,	Henderson,	E. E.
Burton Forrest Mitchell,	Shelby,	Tex.
Kizer D. Morgan,	Middlesex,	Agr.
Theodore Page Morris,	Gastonia,	Agr.
Robert Raymond Morrison,	Concord,	Agr.
Frank Carney Morrow,	Teer, R. 1,	Agr.
Moses Tyson Moye,	Farmville, R. 1,	M. E.
William Carey Murrell,	Wilmington,	E. E.
John Henry Newcomb,	Charlotte,	E. E.
William Grady Newell,	Charlotte,	Agr.
Walter Moore Noble,	Selma,	M. E.
Archie Tillman Odom,	Gibson, R. 2,	Agr.

Name.	*Postoffice.*	*Course.*
Paul Shepard Oliver,	Marietta, R. 1,	Agr.
David Adolphus James Orrell,	Rocky Mount,	E. E.
Dwight Hendricks Osborne,	Greensboro, R. 3,	Agr.
Oscar Albert Paine,	Statesville, R. 3,	Agr.
George Mason Parker,	Woodland,	C. E.
Frank Edward Parrott,	Creedmoor, R. 1,	Agr.
Clarence Lealand Pasour,	Dallas,	Agr.
Edwin Pate,	Laurel Hill,	Agr.
Lloyd Grant Penney,	Elkin,	Chem.
Charles Fuller Phillips,	Thomasville, R. 4,	Agr.
Zeb. Vance Potter,	Vandemere,	Tex.
James Robert Pratt,	Raeford,	M. E.
Palmer William Pressly,	Bartow, Fla.,	E. E.
William Henry Ragan, Jr.,	High Point,	Chem.
Morris Shuford Ramsaur,	Lincolnton,	Agr.
Lawrence Samuel Rankin,	Gastonia,	Agr.
James Lathan Rea,	Matthews, R. 27,	Agr.
Owen Tatum Redwine,	State Road,	Agr.
Oscar Lafayette Rhodes,	Warsaw,	Tex.
William Thomas Rice,	Wilson,	Agr.
Sebastian Spruill Richardson,	Raleigh,	E. E.
George Randolph Robinson,	Rocky Mount,	E. E.
Bernice Umstead Rose,	Conway,	Agr.
Ira Woodall Rose,	Rocky Mount,	C. E.
William Irkson Rouse,	Rose Hill, R. 3,	C. E.
Harry Tatem Rowland,	Middleburg,	Tex.
Horace Ralph Royster,	Shelby,	Tex.
Marion Polk Sanford,	Stem,	Agr.
Gales Webb Scroggs,	Statesville, R. 2,	C. E.
Walter DuPre Shields,	Scotland Neck,	Tex.
Walter Leith Shuping,	Morganton,	E. E.
Charles Basil Skipper, Jr.,	Lumberton,	Tex.
Graham Munroe Sloan,	Black Mountain,	Tex.
Edward Chambers Smith, Jr.,	Raleigh,	C. E.
Joseph Warren Spencer,	Fort Caswell,	C. E.
Frederick William Staudt, Jr.,	Raleigh,	E. E.
Hugh Martin Stoffregen,	Fredericksburg, Va.,	C. E.
James Gray Stokes,	Burgaw,	Agr.
Thomas Rodney Stover,	Crouse,	M. E.
Frank Bellamy Strauss,	Bolton, R. 2,	Agr.
Vernon Suitt,	Durham, R. 4,	E. E.
Jacob Neely Summerell,	China Grove, R. 2,	Tex.

Name.	*Postoffice.*	*Course.*
Thomas Blount Sumner,	Hertford,	E. E.
William Whitmel Swain, Jr.,	Henderson, R. 1,	Agr.
Carl Taylor,	Wilson,	E. E.
John Roy Taylor,	Norwood,	Agr.
Roger Vernon Terry,	Danville, Va.,	E. E.
Augustus Bryan Thrash,	Asheville,	Tex.
Joseph Benton Turley,	Clayton,	Agr.
William Daniel VanDerburgh,	Charlotte,	Tex.
Warner Minnieweather Vernon,	Raleigh,	Agr.
Aubrey Bryant Waddell,	Louisburg,	Tex.
Jew Irvin Wagoner,	Gibsonville, R. 1,	Agr.
Earl Dewitt Waldin,	Miami, Fla.,	E. E.
John Walter Walker,	Raeford,	Agr.
Samuel Stanhope Walker,	Martinsville, Va.,	Tex.
Zeb. Vance Walser, Jr.,	Lexington,	E. E.
Gordon Wells Warren,	Durham, R. 7,	Chem.
Willard Javez Warren,	Durham, R. 7,	Agr.
Henry Carpenter Warwick,	Slab Fork, W. Va.,	C. E.
Robert Earle Watson,	Swan Quarter,	Chem.
Robert Phifer Watson,	Salisbury, R. 4,	Tex.
Herbert Carlyle Weathers,	Raleigh,	M. E.
Perry Arthur Weeks,	Whitakers, R. 4,	Agr.
Earl Parks Welch,	Charlotte, R. 7,	Agr.
James Ashby Wharton,	Greensboro,	Agr.
Thomas Williams Whisnant, Jr.,	Charlotte,	Agr.
Thomas McAlister White,	Ramseur,	E. E.
Wyatt Yelverton Whitley,	Fremont,	E. E.
B. Cundiff Williams,	Manassas, Va.,	Agr.
Hernan Climer Wilson,	Greensboro,	Tex.
Rufus Dunlop Wilson,	Burlington,	C. E.
Charles Barkley Woolley,	Salisbury,	Agr.
James Garrett Wray,	Cane River,	M. E.
William Thomas Wray,	Wilson,	Tex.
Edward Kendall Wright,	Wilson,	Agr.
Paul Robert Yarbrough,	Winston-Salem, R. 2,	Agr.
Thomas Grady Young,	Micaville,	E. E.

TWO-YEAR COURSES.

First Year.

Name.	*Postoffice.*	*Course.*
Frank Brown Alexander,	Charlotte,	Agr.
William Henry Allen, Jr.,	Louisburg,	Agr.
John Lemon Bailey, Jr.,	Elm City,	Agr.
William Otho Baker,	Rocky Mount, R. 1,	Agr.
Samuel Behrends, Jr.,	Wilmington,	Agr.
James Van Brown,	Asheville,	Agr.
Otis Carson Brown,	Rich Square, R. 2,	Agr.
Henry Thomas Browne,	Woodland, R. 1,	Agr.
James Russell Brummitt,	Henderson, R. 4,	Agr.
William Alberta Burgess,	Columbus,	M. A.
Willie James Evans,	Burlington,	Tex.
Giles Frederick Ewing,	Fayetteville,	M. A.
Julian Esmund Finch,	Bailey, R. 1,	Agr.
Charles Leon Fountain, Jr.,	Tarboro, R. 4,	Agr.
James Herbert Gardner,	Macon, R. 3,	Agr.
Dewey Edison Groome,	Greensboro, R. 3,	Agr.
Edward Josephus Hanson,	Wilmington,	Agr.
Ellis Ray Hodgin,	Roanoke, Va.,	Agr.
John Robert Houk,	Morganton, R. 5,	M. A.
Algernon Lee Hubbard, Jr.,	Fayetteville,	M. A.
John David Hunter,	Charlotte,	Tex.
Henry Wood Johnston,	Mebane,	M. A.
David LeRoy Latham,	Surry,	Agr.
DeVair Craven Lentz,	Raeford,	Agr.
Fred Hampton Leonard,	Ramseur,	M. A.
William Arthur Lewis,	Biscoe,	Agr.
William Leslie Lewis,	Raleigh,	M. A.
Louie Carlisle Loftis,	Brevard,	M. A.
John Black McAuley,	Huntersville, R. 21,	Tex.
Rob Roy McGregor,	Laurinburg, R. 1,	M. A.
Howell Foster Massey,	New York, N. Y.,	M. A.
Thomas Morrill Mewborn,	Kinston,	M. A.
John McDowell Michal, Jr.,	Woodrow,	M. A.
Robert James Murphy,	Greensboro,	Agr.
Noah Strong Perry,	Kinston,	Agr.
William Earle Pickett,	Efland, R. 1,	M. A.
Clyde L. Richardson,	Monroe,	Agr.
Raymond Whitmore Riddick,	Spring Hill,	Agr.

Name.	*Postoffice.*	*Course.*
Malcolm Andrew Rousseau,	North Wilkesboro,	Agr.
Eugene Bradley Simons,	Statesville,	Tex.
Fred Jennings Stanback,	Mount Gilead,	Tex.
John Henry Sullivan,	Holyoke, Mass.,	Tex.
Vincent Wright Tabb,	Portsmouth, Va.,	M. A.
Moses Alston Tyson,	Stantonsburg, R. 2,	Agr.
Robert Benjamin Wheless,	Louisburg, R. 1,	Agr.
Joseph Hester Whitaker,	Franklinton,	M. A.
Joseph Harry Whitener,	Stanley, R. 1,	Agr.
Adam Jackson Whitley, Jr.,	Smithfield, R. 1,	Agr.
William Reid Wilson,	Stovall, R. 1,	M. A.
Edwin Snyder Woodward,	Warsaw, R. 2,	M. A.

Second Year.

Raymond Moser Butner,	Bethania,	Agr.
William Heman Hall,	Rose Hill, R. 1,	Agr.
Lewis Morgan Leach,	Thomasville,	Agr.
Kenneth Reid Lewis,	Gastonia, R. 2,	Vet.
Carey Pharr Lowrance,	Mooresville, R. 3,	Agr.
Colin Shaw McArthur,	Laurinburg,	Agr.
James Thomas Mabry,	Norwood,	Agr.
Edmund Jordan Pruden,	Aulander, R. 1,	Agr.
Edward Lindsay Shuford, Jr.,	Hickory,	Vet.
William Boyd Taylor,	Soudan, Va.,	M. A.
Bryan Beatrice Wagoner,	Whitehead,	M. A.

ONE-YEAR COURSE IN AGRICULTURE.

Name.	*Postoffice.*
William Wilcox Barber,	Wilkesboro.
Paul Bryan Belanga,	Creswell.
Thaddeus Lawrence Blue,	Carthage, R. 3.
Harry Lucas Brooks,	Alliance.
Horace Downs Crockford,	Charlotte, R. 5.
Roy Churchwell Crowell, Jr.,	Acton.
John Rowland English, Jr.,	Monroe.
William Justin Flowe,	Harrisburg, R. 2.
Alvin Joseph Gay,	Garysburg, R. 2.
Leonard Earl Hodges,	Washington.
Calier Elbert Kearns,	Farmer.
Henry Bridgers Kennedy,	Goldsboro.

Name.	*Postoffice.*
Earl Settlemyre Lippard,	Barium Springs.
George Baldwin McCoy,	Washington, D. C.
Philbrick McCoy,	Washington, D. C.
Harold Smoot McGill,	Florence, S. C., R. 2.
William Love McIntyre,	Wilmington.
Ernest L. Quincey,	Merry Hill.
Earl Wilson Rhyne,	Dallas, R. 2.
Leslie Burfoot Sanderlin,	Shiloh.
Seth Thomas Walton,	Jacksonville, R. 3.
Thomas Brickle Weldon,	Norlina.

WORK COURSE—AGRICULTURE.

First Year.

William Franklin Albright,	Waynesville.
Norman Alexander,	Liberty, R. F. D.
Rufus Ellis Allen,	Waynesville.
Robert Ray Arledge,	Columbus.
Alvin Starling Bridges,	Wakefield, R. 1.
Jason Leander Gillespie,	Calvert.
Emmett Charles Highsmith,	Watha, R. 1.
Zeb. Vance Kiser,	Matthews, R. 1.
Bart Regan Melvin,	White Oak, R. 2.
Joseph Herbert Smith,	Cornelius.
Oliver Frances Taylor,	Ararat, R. 1.
Charles Henry Warren,	Lenoir.

Second Year.

Lewis Whitley Bartholomew,	Raleigh, R. 5.
Leroy Eaton Feezor,	Winston-Salem, R. 1.
Samuel Wade Furches,	Mocksville, R. 2.
James Fleet Holiday,	Snow Camp, R. 1.
John Lloyd Jenkins,	Gastonia, R. 4.
Samuel Tate Latta, Jr.,	Hillsboro, R. 1.
Coran Stephen Rollins,	Ellenboro, R. 1.
Blake Conway Wells,	Canton, R. 2.
Van Carson Wells,	Canton, R. 2.

SPECIAL.

Name.	*Postoffice.*	*Course.*
James Lafayette Foy,	Pollocksville,	C. E.

WINTER COURSES.

Agriculture.

Name.	*Postoffice.*
Carl Cornelius Barger,	Salisbury, R. 6.
Luther Bowmon Barrier,	Mount Pleasant, R. 1.
Byron Bizzell,	Newton Grove, R. 2.
Reece Edward Brown,	Charlotte, R. 12.
Robert Walter Cole,	Carbonton.
Frank Monroe Davis,	Edgar.
George Columbus Dees,	Grantsboro.
Francis Bruner Efird, Jr.,	Winston-Salem.
Harvey Wilson Farlow,	Randleman, R. 3.
Jonas Richard Futrell,	Conway, R. 1.
Andrew Mortimer Gardner,	Nashville, R. 2.
James Swindell Hall,	Wilmington, R. 2.
Houston Tailor Highfill,	Mayodan, R. 1.
James Graham Lane,	Auburn.
Newton Carver Lee,	Newton Grove, R. 2.
Walter Avera Liles,	Zebulon, R. 1.
Harry Lenox Lubin,	New York, N. Y.
Charles Payne Mason,	Pinehurst.
Verne Goodman Moser,	Asheville, R. 1.
Loue Nussman,	Mount Pleasant.
Joseph Anderson Patrick,	Lowell, R. 1.
Orlando Redic Pollard,	Tarboro.
Frank Ray Railey,	Margarettsville.
Frank Stone Spratt,	Charlotte, R. 3.
Benjamin David Stephenson,	Pendleton.
George Ralph Strickland,	Middlesex, R. 2.
Haywood Ralston Thompson,	Milton, R. 1.
Fred Wilkison Tilson,	Mars Hill.
Allison William Trust,	East Arcadia.

GRADUATE VETERINARIANS.

Moore B. Blackstock,	Spartanburg, S. C.
Thomas R. Britt,	Newton Grove, R. 1.
J. F. Foley,	Kinston.
William Isaac Hobbs,	Clinton.
T. E. Jago,	Athens, Ga.
Albert Carl Jones,	High Point.
William Henry Kern,	Winston-Salem.

Name.	*Postoffice.*
Milton M. Leonard,	Asheville,
Timothy Archie Monk,	Goldsboro.
Julius Isaac Neal,	Sanford.
Roy H. Parker,	Gastonia.
Redding Stancill Sugg,	Washington.

SUMMER TERM IN AGRICULTURE.

First Year.

Name.	*Postoffice.*
Allie Bryan Combs,	Bryson City.
Jackson Hamilton,	Pineville.
Joseph P. Harris,	Middleburg.
Fred Irvin Howard,	Abbottsburg.
Sadie Junius Husketh,	Durham, R. 3.
Howard Hoffman McKeown,	Mocksville.
Hilliard Joshua Massey,	Severn.
Lycurgus Elisha Mauney,	Murphy.
Thomas Lewter Revelle,	Conway.
Herbert Scholz,	Macon.
Clarendon Rivers Spencer,	Whiteville.
Charles Houston Utley,	Apex.
Emily Hunt Walker,	Raleigh.

Second Year.

Arthur Vance Cole,	Durham.
Jerry Day,	Blowing Rock.
Marcus Baxter Dry,	Cary.
James Hutchins,	Hoffman.
Elihu Pinckney Mendenhall,	Monroe, R. 5.

SUMMER SCHOOL FOR DEMONSTRATION AGENTS.

August, 1915.

Name.	*Postoffice.*	*County.*
C. R. Hudson,	Raleigh,	Wake.
T. E. Browne,	West Raleigh,	Wake.
A. K. Robertson,	West Raleigh,	Wake.
E. S. Millsaps,	Statesville,	Iredell.
T. D. McLean,	Aberdeen,	Moore.
R. W. Freeman,	Wilson,	Wilson.

Name.	*Postoffice.*	*County.*
. P. Kerr,	Haw River,	Alamance.
. C. Turner,	Mebane,	Alamance.
. W. Cameron,	Polkton,	Anson.
. K. Craven,	Abbottsburg,	Bladen.
. F. Latham,	Surry,	Beaufort.
. T. Melvin,	Supply,	Brunswick.
. D. Weaver,	Weaverville,	Buncombe.
. J. Blankenship,	Yanceyville,	Caswell.
. H. B. Mask,	Newton,	Catawba.
. L. Edwards,	Ore Hill,	Chatham.
. D. Fletcher,	Fayetteville,	Cumberland.
. M. Gidney,	Shelby,	Cleveland.
. M. Goforth,	Lenoir,	Caldwell.
. D. Goodman,	Concord,	Cabarrus.
. J. Hendren,	Chadbourn,	Columbus.
. W. Sears,	Vanceboro,	Craven.
. C. Gilstrap,	Murphy,	Cherokee.
. D. Bowditch,	Hayesville,	Clay.
. R. McGirt,	Durham,	Durham.
. B. Steele,	Lexington,	Davidson.
. J. Middleton,	Warsaw,	Duplin.
eno Moore,	Whitakers,	Edgecombe.
ohn A. Boone,	Franklinton,	Franklin.
ruce Anderson,	Winston-Salem,	Forsyth.
. H. Anderson,	Greensboro,	Guilford.
. P. Folk,	Gastonia,	Gaston.
. A. Morris,	Oxford,	Granville.
. E. Mewborn,	Snow Hill,	Greene.
. L. Brown,	Waynesville,	Haywood.
. N. Looper,	Raeford,	Hoke.
. B. Stevens,	Scotland Neck,	Halifax.
. A. Patterson,	Airlie,	Halifax.
. H. Turlington,	Duke,	Harnett.
. L. Perkins,	Hendersonville,	Henderson.
. E. Dull,	Statesville,	Iredell.
. C. Boone,	Kinston,	Lenoir.
. H. Henley,	Sanford,	Lee.
. L. Smarr,	Lincolnton,	Lincoln.
. A. Bennett,	Jackson Springs,	Montgomery.
. A. Boone, Jr.,	Aberdeen,	Moore.
. C. Barrett,	Carthage,	Moore.
. R. Sams,	Marshall,	Madison.

Name.	*Postoffice.*	*County.*
A. L. Siler,	Franklin,	Macon.
J. L. Holliday,	Williamston,	Martin.
R. W. Graeber,	Charlotte,	Mecklenburg.
W. R. Bailey,	Marion,	McDowell.
J. P. Herring,	Wilmington,	New Hanover.
E. P. Josey,	Nashville,	Nash.
P. C. Williams,	Chapel Hill,	Orange.
F. A. Brown,	Roxboro,	Person.
G. H. Highsmith,	Currie,	Pender.
B. T. Ferguson,	Greenville,	Pitt.
G. W. Falls,	Elizabeth City,	Pasquotank.
G. W. Byars,	Hamlet,	Richmond.
L. E. Blanchard,	Lumberton,	Robeson.
W. B. Crumpton,	Salisbury,	Rowan.
I. H. Faust,	Ashboro,	Randolph.
F. S. Walker,	Reidsville,	Rockingham.
S. J. Lentz,	Norwood,	Stanly.
W. P. Holt,	Danbury,	Stokes.
J. A. Turlington,	Salemburg,	Sampson.
McDonald Davis,	Clinton,	Sampson.
J. W. Johnson,	Mount Airy,	Surry.
T. J. W. Broom,	Monroe,	Union.
S. R. Bivens,	Henderson,	Vance.
F. B. Newell,	Warrenton,	Warren.
O. O. Dukes,	Wilson,	Wilson.
W. H. Chamblee, Jr.,	Zebulon,	Wake.
A. G. Hendren,	Straw,	Wilkes.
J. C. Dobbins,	Marler,	Yadkin.
F. E. Patton,	Burnsville,	Yancey.

SUMMARY.

By Classes.

Graduate	33
Senior	91
Junior	88
Sophomore	127
Freshman	220
Short Courses:	
Agricultural, 2 years	34
Mechanic Arts, 2 years	19
Textile, 2 years	6
Agricultural, 1 year	22
Agricultural, work, 2 years	21
Veterinary, 2 years	2
Agricultural, winter, 4 weeks	29
Graduate Veterinary, winter, 1 week	12
Summer School	18
Special	1
Total	723

559

164

723

By Courses.

Agricultural, including short courses in agriculture and veterinary science	367
Chemical	17
Civil Engineering	76
Mechanical Engineering, including Mechanic Arts	83
Electrical Engineering	103
Textile, including short courses	77
Total	723
Summer School for Demonstration Agents	77

TWENTY-SIXTH ANNUAL COMMENCEMENT.

MAY 25, 1915.

DEGREES CONFERRED.

BACHELOR OF SCIENCE.

In Agriculture.

Joseph Brandon Bruner,
Guy Winston Commander,
Rutledge Hughes Feild,
Peter Melvin Gilchrist,
John Hubbard Hall, Jr.,
Russell Peyton Harris,
Vernon Ray Herman,
Herndon Hopkins,
John Stewart Howard,
Waverly Fletcher Kilpatrick,
Robert Vernon Knight,
Irvin Tracy Lewis,
Jesse Webb Lindley,
Robert Timberlake Newcomb,
John Gay Pinner,
Carl Clawson Proffitt,
Charles Landon Proffitt,
John Duncan Ray,
Walter Johnston Smith, Jr.,
Herbert Spencer,
Daniel McGilvary Tate,
Arthur Lee Teachey,
Jesse Ernest Trevathan,
Buxton White.

In Chemistry.

Henry Bacon Constable,
William Victor Pearsall,
Frederick Carl Wiggins.

BACHELOR OF ENGINEERING.

In Civil Engineering.

John Cline Carpenter,
John William Cox,
Dallas Thornton Daily,
Leonidas Polk Denmark,
Charles Patterson Eldridge,
Harry Benjamin Henderlite,
Joseph Raoul Leguenec,
Karl Osborne,
William Owen Potter,
Joseph McKay Spears,
James Hugh Ward,
John Rodman Williams,
Henry Kollock Witherspoon.

In Electrical Engineering.

Henry Milton Alexander,
John Mann Carter,
Raymond Crowder,
Aaron Conard Fluck,
Henry Mercer Harshaw,
George Linwood Jeffers,
Donald Grattan McArn,
Landon Coats Rosser,
Will Miller Watson.

In Mechanical Engineering.

Beverley Moss Blount,
Edward Lamar Cloyd,
Edward Livingston Cotton,
William King Eldridge,
William Benjamin Foster,
Frank Temple Gray,
David Lee Hooper,
Frank Kipp Kramer,
William Daniel Martin,
Asa Gray Phelps,
Frank Wilson Procter,
Charles Wright Weaver,
Forrest Egan Wysong.

In Textile Industry.

Lewis Carroll Atkisson, James Holmes Haddock,
Whitefoord Ingersoll Smith.

MASTER OF SCIENCE.

In Agriculture.

Harry Curtis Young.

In Chemistry.

Fleming Bates Sherwood.

CIVIL ENGINEER.

Thomas Fenner Gibson, Guy Francis Hinshaw,
John Franklin Ziglar.

MECHANICAL ENGINEER.

John William Harrelson, Rufus Williams Hicks, Jr.,
Fred Barnett Wheeler.

ELECTRICAL ENGINEER.

Frank Curtis Michael.

TEXTILE ENGINEER.

Lovic Rodgers Gilbert.

HONORS.

HONORS IN SCHOLARSHIP.

For Four Years.

J. C. Carpenter, A. C. Fluck, H. Spencer,
R. H. Feild, F. K. Kramer, B. White.
W. D. Martin,

FOR 1914-1915.

Senior Class.

J. C. Carpenter, R. P. Harris, J. D. Ray,
J. W. Cox, H. B. Henderlite, H. Spencer,
R. H. Feild, J. S. Howard, J. E. Trevathan,
A. C. Fluck, F. K. Kramer, B. White,
J. H. Hall, Jr., W. D. Martin, F. C. Wiggins.

Junior Class.

J. V. Champion,
S. G. Crater,
K. L. Greenfield,
R. W. Hamilton, Jr.,
E. K. Herman,
R. H. Hodges,
D. R. Holt,
R. O. Lindsay,
J. H. Mason,
J. D. Miller,
J. B. Pridgen,
H. Rankin,
L. B. Ray,
R. M. Ritchie,
K. Sloan,
P. E. Snead,
G. W. Underhill,
J. O. Ware.

Sophomore Class.

A. S. Cline,
J. E. Ivey,
F. S. Kluttz,
W. E. Matthews,
G. K. Middleton,
W. W. Riddick,
W. K. Scott.

Freshman Class.

W. Z. Betts,
J. K. Coggin,
G. C. Cox,
R. L. Hayes,
B. B. Stockard,
Y. Zenishek.

Two-Year Courses.

FIRST-YEAR AGRICULTURAL.

R. M. Butner,
C. P. Lowrance.

FIRST-YEAR VETERINARY.

K. R. Lewis.

Honors for Punctuality.

J. W. Bason,
J. F. Clark, Jr.,
A. S. Cline,
J. K. Coggin,
S. M. Credle,
H. W. Davis,
L. E. Feezor,
S. W. Furches,
R. L. Kelly,
P. H. Kime,
J. T. Larkins, Jr.,
J. D. Miller,
T. B. Misenheimer,
J. A. Patrick,
J. B. Pridgen,
Z. B. Robinson,
C. S. Rollins,
G. C. Self,
T. P. Simmons,
P. J. Steele,
R. L. Tatum,
J. M. Walker,
B. C. Wells,
V. C. Wells,
J. F. Williams.

MEDALS AWARDED.

Medal of National Association of Cotton Manufacturers.

W. I. Smith.

Oration Medal.

A. L. Teachey.

REGISTER OF ALUMNI.

Name.	*Degree.*	*Address.*
DURANT STEWART ABERNETHY,	B.E. 1906,	Charlottesville, Va.
Assistant Engineer, Southern Railway.		
LEROY FRANKLIN ABERNETHY,	B.Agr. 1905,	Hickory, N. C.
Abernethy Hardware Company.		
NELSON ADAMS,	B.E. 1904,	McColl, S. C.
Farmer.		
HAYWOOD LEWIS ALDERMAN,	B.E. 1904,	Greensboro, N. C.
Division Superintendent in Operating Department, Southern Power Co.		
HENRY MILTON ALEXANDER,	B.E. 1915,	West Point, N. Y.
Cadet U. S. Military Academy.		
KEMP ALEXANDER,	B.E. 1900,	Ashboro, N. C.
Superintendent Acme Hosiery Mills.		
NEILY ORMOND ALEXANDER,	B.S. 1912,	Matthews, N. C., R. 17.
Farmer.		
WILLIAM DAVIDSON ALEXANDER, JR.,	B.S. 1899,	Charlotte, N. C.
Civil and Drainage Engineer, and Engineer Mecklenburg Drainage Commission.		
DANIEL ALLEN,	B.S. 1896,	Raleigh, N. C.
Farming and Real Estate.		
GEORGE GILDEROY ALLEN,	B.E. 1906,	Concord, N. C.
Overseer of Carding, Gibson Mfg. Co.		
LESLIE LYLE ALLEN,	B.E. 1900,	Spartanburg, S. C.
Cotton Merchant.		
ROBERT WILSON ALLEN,	B.E. 1893,	Monroe, N. C.
Superintendent of Schools.		
LEWIS ALLEN AMMON,	B.S. 1913,	Escuela, Ariz.
Farmer, Tucson Indian Training School.		
CHARLES SIDNEY ANDREWS,	B.E. 1914,	Quincy, Mass.
Draftsman with Fore River Shipbuilding Corporation.		
GRAHAM HUDSON ANTHONY,	B.E. 1914,	Winsted, Conn.
With Gilbert Clock Co.		
JOHN CAMILLUS APP,	B.S. 1908,	Charleston, W. Va.
Director Hygienic Laboratory, City Department of Health.		
JOHN ALLEN AREY,	B.S. 1909,	Elmwood, N. C.
M.S., 1910. Assistant in Dairying, U. S. Department of Agriculture.		
GILBERT LUTHER ARTHUR, JR.,	B.S. 1913,	Morehead City, N. C.
DORSEY FROST ASBURY,	B.S. 1898,	Washington, D. C.
Ordnance Engineer, U. S. Ordnance Co.		

Name.	*Degree.*	*Address.*
GEORGE PAGE ASBURY,	B.E. 1906,	Washington, D. C.
Engineer, Draftsman, Southern Railway.		
SAMUEL ERSON ASBURY,	B.S. 1893,	College Station, Tex.
M.S. 1896. Assistant State Chemist.		
SYDNEY WOODWARD ASBURY,	B.E. 1904,	Charlotte, N. C.
Heating Engineer and Architectural Draftsman, with Louis H. Asbury, Architect.		
THOMAS MARTIN ASHE,†	B.E. 1895,	Raleigh, N. C.
LEWIS CARROLL ATKISSON,	B.E. 1915,	East Durham, N. C.
With Durham Cotton Mfg. Co.		
BASCUM OTTO AUSTIN,	B.E. 1914,	Charlotte and Durham, N. C.
Engineer for Gilbert C. White, C.E.		
ROBERT JAMES AVERY,	B.Agr. 1905,	Morganton, N. C.
Avery Brothers, Railroad Contractors.		
ROBERT KENNETH BABINGTON,	B.E. 1910,	Gastonia, N. C.
Superintendent of Plant, Piedmont Telephone and Telegraph Co.		
CHARLES ALBION BACHE,	B.E. 1913,	Merritt, Fla.
With C. W. Bache Eng. Co.		
OSCAR LUTHER BAGLEY,	B.S. 1905,	Goldsboro, N. C.
Assistant Ticket Agent.		
EUGENE CLEVELAND BAGWELL,	B.E. 1904,	Norfolk, Va.
President's Assistant, Seaboard Air Line Railway.		
CLARE RUSSELL BAILEY,	B.S. 1914,	Chadbourn, N. C.
With LaGrange Packing Co. of Titusville, Fla.		
EDWARD PAR BAILEY,	B.E. 1904,	Wilmington, N. C.
President Wilmington Iron Works and President Marine Railway Co.		
HUGH MARCELLUS BAILEY,	B.S. 1914,	Woodleaf, N. C.
Farmer.		
ROGER MOORE BAILEY,	B.S. 1913,	Elm City, N. C.
Bookkeeper for John L. Bailey.		
WILLIAM BAILEY,	B.E. 1911,	Cheraw, S. C.
With Yadkin River Power Company.		
FRANK OSCAR BALDWIN,	B.S. 1908,	Richmond, Va.
Director of Settling Basins and Laboratory, Richmond City Waterworks.		
WILLIAM HERBERT DOUGHTY BANCK,	B.E. 1909,	Wilmington, N. C.
Civil Engineer.		
IRA WILSON BARBER,	B.S. 1899,	Mount Airy, N. C.
Superintendent Electric Light and Power Plant and Waterworks.		
JAMES CLAUDIUS BARBER,	B.E. 1904,	Barber, N. C.
Farmer.		

† Deceased.

Name.	*Degree.*	*Address.*
TOLLIE CHESTER BARBER,	B.E. 1911,	Cliffside, N. C.
With Cliffside Mills.		
WILLIAM WALTON BARBER,	B.E. 1904,	Barber, N. C.
Farmer.		
FLETCHER HESS BARNHARDT,	B.E. 1901,	Phœnixville, Pa.
Assistant Engineer, the Phœnix Bridge Co.		
WILLIAM ALEXANDER BARRETT,	B.E. 1904,	Missoula, Montana.
Electrical Engineer, Missoula Light and Water Co.		
GEORGE FRANCIS BASON,	B.E. 1908,	Ithaca, N. Y.
Student, Cornell University.		
HERBERT SCANDLIN BATTIE,	B.E. 1907,	Atlanta, Ga.
With W. C. Spiker, Con. Eng. Home Address, Greensboro, N. C.		
THOMAS LEVINGSTON BAYNE, JR.,	B.S. 1914,	Lillington, N. C.
Agriculturist and Principal Lillington Farm Life School.		
JOHN MANN BEAL,	B.S. 1911,	Agr. College, Miss.
M.S. 1913, Miss. A. & M. Prof. of Botany and Forestry, Miss. Agricultural and Mechanical College. Plant Pathologist for Miss. Agr. Exp. Station.		
JAMES CLAUDIUS BEAVERS,	B.Agr. 1906,	Lafayette, Ind.
Associate in Soils and Crop Extension, Purdue Agricultural Exp. Station.		
SIDNEY HAMILTON BECK,*	B.S. 1898,	Washington, D. C.
JOHN LELAND BECTON,	B.E. 1908,	Wilmington, N. C.
C.E. 1913. Civil Engineer.		
HARWOOD BEEBE,	B.E. 1908,	Aquadale, N. C.
Pilot Valuation Dept., Southern Ry. Co.		
CHARLES EDWARD BELL,	B.S. 1911,	Raleigh, N. C.
Assistant Food Chemist, N. C. Department of Agriculture.		
NEEDHAM ERIC BELL,	B.S. 1906,	Montgomery, Ala.
Soil Surveyor, State of Alabama.		
WILLIAM OSBORNE BENNETT,	B.E. 1901,	Maxton, N. C.
Manager Elba Manufacturing Co.		
ROBERT LINN BERNHARDT,	B.S. 1900,	Salisbury, N. C.
Secretary-Manager Salisbury Hardware and Furniture Co.		
LESLIE GRAHAM BERRY,	B.E. 1900,	Charlotte, N. C.
Manager Southern Engineering Co.		
HERMAN VON BIBERSTEIN,	B.E. 1914,	Laurel, Miss.
Draftsman, New Orleans, Mobile and Chicago Railroad.		
JOHN HENDERSON BIRDSONG,	B.S. 1899,	Chicago, Ill.
Chief Chemist and Metallurgist, the National Malleable Castings Co.		
JOE PITTMAN BIVENS,*	B.E. 1907,	Charlotte, N. C.
Member of firm of Michael & Bivens, Electrical Construction.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
JAMES ADRIAN BIZZELL,	B.S. 1895,	Ithaca, N. Y.
M.S. 1900. Ph.D. 1903, Cornell Univ. Prof. Soil Technology, N. Y. State College of Agriculture.		
FRED MCCULLOUGH BLACK,	B.E. 1910,	East Pittsburgh, Pa.
Erecting Department, Westinghouse Electric and Manufacturing Co.		
KENNETH LEON BLACK,	B.E. 1906,	Richmond, Va.
Pres. and Treas. K. L. Black & Co., Inc., Engineers and General Contractors.		
WILLIAM LAMAR BLACK,	B.E. 1908,	Charlotte, N. C.
With Southern Power Co.		
ENOS CLARKSON BLAIR,	B.S. 1914,	West Raleigh, N. C.
Assistant Agronomist in Soils, N. C. Agricultural Experiment Station.		
BEVERLEY MOSS BLOUNT,	B.E. 1915,	Newport News, Va.
Newport News Shipbuilding and Dry Dock Co.		
JOHN ISHAM BLOUNT,	B.E. 1895,	Birmingham, Ala.
C.E. 1897. J. I. Blount & Co. and the Blount Specialty Co.		
WILLIAM MORTON BOGART,*	B.E. 1903,	Dallas, Tex.
Contracting Engineer, General Fire Extinguisher Co. of Texas.		
ALLISON HODGES BOND,	B.E. 1912,	Bethlehem, Pa.
Draftsman, Ordnance Dept., Bethlehem Steel Co.		
THOMAS SAWYER BOND,	B.E. 1910,	Palestine, Tex.
With International and Great Northern Railway. Home Address, Windsor, N. C.		
LESLIE NORWOOD BONEY,	B.E. 1903,	Goldsboro, N. C.
Architect.		
FRED. WILHELM BONITZ,	B.E. 1901,	Wilmington, N. C.
Lawyer, Engineering Department of Standard Oil Co.		
HENRY EMIL BONITZ,	B.E. 1893,	Wilmington, N. C.
Architect.		
WILLIAM DAVID BOSEMAN,	B.E. 1902,	Rocky Mount, N. C.
Farmer, with R. H. Ricks.		
ZOLLY MOSBY BOWDEN,	B.E. 1901,	Lakeland and Plant City, Fla.
Electrician, Coranet Phosphate Co.		
EDWIN DENNIS BOWDITCH,	B.S. 1913,	Hayesville, N. C.
Agent Farmers' Coöperative Demonstration Work.		
ROY BOWDITCH,	B.E. 1910,	Pittsfield, Mass.
Assistant, Transformer Testing Department, General Electric Co.		
ALAN THURMAN BOWLER,	B.E. 1912,	Raleigh, N. C.
Secretary Chamber of Commerce.		
ASA GRAY BOYNTON,	B.E. 1908,	Biltmore, N. C.
Civil Engineer, Biltmore Estate.		
CARL RAY BRADLEY,	B.E. 1910,	St. Louis, Mo.
Motor Engineering Department, Wagner Electric Manufacturing Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
JAMES WASHINGTON BRAWLEY,	B.S. 1895,	Greensboro, N. C.
Vice-President and Treasurer Real Estate and Trust Co.		
JOHN BENJAMIN BRAY,	B.E. 1911,	Raleigh, N. C.
Highway and Municipal Engineer.		
VICTOR WINFRED BREEZE,	B.E. 1914,	Durham, N. C.
Assistant, Office of Wm. M. Piatt.		
THOMAS JOHNSON BREVARD,*	B.S. 1910,	Fair View, N. C.
CHARLES MEEKINS BRICKHOUSE,	B.S. 1914,	Zebulon, N. C.
Teacher of Agriculture at Wakelon Farm Life School.		
HERMON BURKE BRIGGS,	B.E. 1913,	Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
BENJAMIN ALEXANDER BROOM,	B.E. 1905,	Sioux City, Iowa.
Consulting Mechanical and Electrical Engineer.		
CECIL DEWITT BROTHERS,	B.E. 1909,	New York, N. Y.
With New Jersey Zinc Co.		
BEDFORD JETHRO BROWN,	B.E. 1901,	Charlotte, N. C.
Superintendent Meter Department, Southern Power Co.		
CLAYTON EDWARD BROWN,	B.E. 1912,	Fair Forest, S. C.
Masonry Inspector, Southern Ry.		
FRANK HAMILTON BROWN,	B.Agr. 1908,	Cullowhee, N. C.
Teacher of Science and Agriculture, Cullowhee Normal and Industrial School.		
JOEL EDWARD BROWN,	B.S. 1911,	Grimes, Cal.
One Smith Co.		
JAMES HOWARD BROWN,	B.S. 1911,	Holton, Kas.
M.S. 1912. D.V.M., Kansas City Veterinary College. County Secretary Y. M. C. A., Jackson County, Kansas.		
WILLIAM BACHMAN BROWN,	B.E. 1911,	Glass, N. C.
Interstate Commerce Commission, Railway Valuation.		
JOSEPH BRANDON BRUNER,	B.S. 1915,	Oxnard, Cal.
Agriculturist, American Beet Sugar Co.		
STEPHEN COLE BRUNER,	B.S. 1912,	Santiago de las Vegas, Cuba.
Assistant Pathologist, Estacion Agronomica de Cuba.		
THOMAS KINCAID BRUNER,	B.E. 1910,	Sheffield, Ala.
Chief Clerk to Master Mechanic, Southern Railway.		
CARNEY JOHN BRYAN,	B.E. 1907,	St. Andrews, Fla.
C. J. Bryan & Co., Wholesale Fish Dealers.		
GUY KEDAR BRYAN,	B.E. 1911,	Tampa, Fla.
JOHN HARVEY BRYAN,	B.E. 1908,	East Pittsburgh, Pa.
M.E. 1913. Sales Dept., Westinghouse Electric and Mfg. Co.		
KIT BRYAN,	B.E. 1911,	Manila, P. I.
Surveyor, Bureau of Lands.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
JAMES RAMSEY BUCHANAN,	B.E. 1914,	Pittsburgh, Pa.
Westinghouse Electric and Mfg. Co.		
ELTON ELROY BUCK,	B.E. 1910,	Bridgeport, Conn.
City Engineer's Office.		
JOSEPH SAMUEL BUFFALOE,	B.S. 1897,	Garner, N. C.
Physician.		
HARLEY WILSON BULLARD,	B.S. 1914,	West Raleigh, N. C.
Cotton Grading Work, N. C. Agricultural Experiment Station.		
JOEL W. BULLOCK,	B.Agr. 1905,	Dabney, N. C., R. 1.
Farmer.		
WALTER AUSTIN BULLOCK,	B.S. 1895,	Red Springs, N. C.
Farmer.		
JAMES HARRY BUNN,	B.E. 1900,	Henderson, N. C.
Superintendent Henderson Cotton Mills and Croatan Spinning Mills.		
WILLIAM BRYANT BURGESS,	B.E. 1908,	Portsmouth, Va.
Electrical Draftsman, Government Navy Yard, Norfolk.		
WILLIAM ANDERS BUYS,	B.E. 1906,	Belhaven, N. C.
Civil Engineer, the Interstate Cooperage Co.		
VON PORTER BYRUM,	B.E. 1911,	Fort Lauderdale, Fla.
Chief Engineer, Fort Lauderdale Ice and Electric Co.		
BRICE LEGRIER CALDWELL,	B.S. 1913,	Senter, Mich.
With Atlas Powder Co.		
ROBERT OLIN CALDWELL,	B.S. 1914,	Concord, R. 1, N. C.
Farmer.		
WALTER GRAHAM CALDWELL,	B.S. 1914,	Raine, Tenn.
Dairyman for Walnut Hill Dairy.		
LINDSAY FERGUSON CARLETON,	B.E. 1907,	Pittsburgh, Pa.
Sales Engineer H. W. Johns-Manville Co.		
JOHN CLINE CARPENTER,	B.E. 1915,	Portsmouth, Va.
Civil Engineer, S. A. L. Ry.		
JOHN SAMUEL P. CARPENTER,	B.E. 1903,	Boston, Mass.
Quarantine Inspector, Federal Horticultural Board. Home Address, Cherryville, N. C.		
JOHN WILLIAM CARROLL,	B.S. 1897,	Wallace, N. C.
Physician.		
JOHN MANN CARTER,	B.E. 1915,	Petersburg, Va.
Electrician, DuPont Powder Co.		
ROBERT HILL CARTER,	B.E. 1907,	La Fundicion, Peru, S. A.
Chief Electrician, Cerro De Pasco Mining Co.		
HENRY BROZIER CARTWRIGHT,	B.E. 1905,	Jacksonville, Fla.
Assistant Engineer, Seaboard Air Line Ry.		

Name. *Degree.* *Address.*

HENRY ROY CATES, B.S. 1911, Washington, D. C.
U. S. Department of Agriculture, Bureau of Plant Industry. Office of Forage Crop Investigations.

JUNIUS SIDNEY CATES, B.S. 1902, Washington, D. C.
M.Agr. 1904. Agriculturist, Office of Farm Management, United States Department of Agriculture.

WILLIAM MILLER CHAMBERS, B.E. 1905, Maben, W. Va.
Pay Roll Man, W. M. Ritter Lumber Co.

MARK HOPKINS CHESBRO, B.Agr. 1906, Kelowna, B. C.
Horticulturist, Bankhead Orchard Co., Ltd.

CONNOR CALHOUN CLARDY, B.E. 1906, Los Angeles, Cal.
Los Angeles Office, General Electric Co.

CHARLES EDWARD CLARK, B.S. 1897, Rocky Mount, N. C.
Assistant Director Edgecombe Test Farm.

DAVID CLARK, B.E. 1895, Charlotte, N. C.
M.E. 1896; C. E. 1897. Owner and Editor *Southern Textile Bulletin.*

JAMES DUNCAN CLARK, B.S. 1906, Tampa, Fla.
President Peninsular Paper Co. Manager Ingleside Orange Groves.

JOHN WASHINGTON CLARK, B.E. 1906, West Durham, N. C.
B.E. (Tex.) 1907. Superintendent Erwin Bleaching and Finishing Plant.

THORNE MCKENZIE CLARK, B.E. 1909, Raleigh, N. C.
Secretary and Treasurer, Commercial Bldg. Co.

WALTER CLARK, JR., B.E. 1903, Raleigh, N. C.
LL.B. 1905, University of North Carolina. LL.M. 1906, George Washington University. Lawyer.

WILLIAM ALEXANDER GRAHAM CLARK, B.S. 1897, Boston, Mass.
M.E. 1899. Commercial Agent U. S. Department of Commerce.

SAMUEL HERBERT CLARKE, B.E. 1906, Richmond, Va.

HENRY CALEB CLAY, B.E. 1911, Eagle Butte, Mont.
Ranchman.

WILEY THEODORE CLAY, B.E. 1906, Raleigh, N. C.
With C. V. York, Builder.

AMOS BAXTER CLEMENT, B.E. 1913, Pittsburgh, Pa.
Testing Department, Westinghouse Electric and Manufacturing Co.

WILLIAM RANDOLPH CLEMENTS, B.E. 1913, Cincinnati, Ohio.
Engineering Salesman, Westinghouse Electric and Mfg. Co.

EDWARD LAMAR CLOYD, B.E. 1915, Lenoir, N. C.
Instructor in Physics and Mathematics, Lenoir High School.

EDWIN LACY COBLE, B.S. 1914, Raleigh, N. C.
Member Firm J. L. O'Quinn Co., Florists.

Name.	*Degree.*	*Address.*
ROBERT BAXTER COCHRAN,	B.E. 1902,	Norwood, Ohio.
Chief Inspector, Bullock Electric Manufacturing Co.		
ANSON ELIKEM COHOON,	B.S. 1898,	Portland, Oregon.
Forest Supervisor, Forest Service, U. S. Department of Agriculture.		
JOHN ELIOT COIT,	B.Agr. 1903,	Berkeley, Cal.
Professor of Citriculture and Semitropical Pomology, University of California.		
THOMAS ALEXANDER COLE,	B.S. 1913,	Carthage, N. C.
Farm Demonstrator, Moore County.		
PAUL COLLINS,	B.S. 1901,	New Haven, Conn.
Analytical and Consulting Chemist.		
GUY WINSTON COMMANDER,	B.S. 1915,	Elizabeth City, N. C.
Real Estate.		
HENRY BACON CONSTABLE,	B.S. 1915,	Vicksburg, Miss.
Chemist Refuge Cotton Oil Co.		
JOHN DOWNIE COOPER, JR.,	B.E. 1913,	Henderson, N. C.
Superintendent Harriet Cotton Mills No. 3, Henderson, N. C.		
GEORGE WASHINGTON CORBETT, JR.,	B.E. 1895,	Currie, N. C., R. 2.
Saw, Planing and Grist Mills.		
SUMMEY CROUSE CORNWELL,	B.E. 1903,	Hickory, N. C.
Cornwell-Hedleston Co., Consulting Engineers.		
CHARLES EDWARD CORPENING,	B.E. 1894,	Lenoir, N. C., R. 3.
Farmer and Lumber Dealer.		
EDWARD LIVINGSTON COTTON,	B.E. 1915,	City Point, Va.
Supervisor Nitric Acid Area, DuPont Powder Co.		
LLEWELLYN HILL COUCH,	B.E. 1908,	Parlin, N. J.
Superintendent Electrical Construction, E. I. duPont de Nemours & Co.		
WALTER MILLER COWLES,	B.E. 1909,	Pittsburgh, Pa.
Automobile Service Department, Westinghouse Electric and Mfg. Co.		
DAVID COX,	B.E. 1894,	Hertford, N. C.
Civil Engineer and Timber Dealer and Estimator.		
DAVID DAVIES COX,	B.E. 1914,	Ensley, Ala.
Assistant to Testing Engineer, Tenn. Coal, Iron and R. R. Co.		
DUNCAN ARCHIBALD COX,	B.S. 1906,	Rowland, N. C.
Manager Hub Hardware Co.		
JOHN WILLIAM COX,	B.E. 1915,	Pittsburgh, Pa.
Aid, Bureau of Standards, U. S. Government.		
SAINT JOHN COX,	B.E. 1914,	Ensley, Ala.
Assistant Testing Engineer, Tenn. Coal, Iron and R. R. Co.		
LELAND MIOT CRAIG,	B.E. 1914,	Phoenixville, Pa.
Draftsman, Phœnix Bridge Co.		
WILLIAM PESCUD CRAIG,	B.S. 1901,	Marion, N. C.

Name.	*Degree.*	*Address.*
JOHN BENNETT CRAVEN,	B.S. 1913,	Chicago, Ill.
Chemist, Peoples Gas, Light and Coke Co.		
WILLIAM LOIS CRAVEN,	B.E. 1901,	Concord, N. C.
Engineer and Contractor.		
CHARLES LESTER CREECH,	B.S. 1903,	Winston-Salem, N. C.
Sales Manager, J. C. Spach Wagon Works.		
WOODFIN GRADY CREDLE,	B.S. 1914,	Swan Quarter, N. C.
Farmer.		
ALEXANDER DOANE CROMARTIE,	B.Agr. 1906,	Garland, N. C.
Farmer.		
WILLIAM HENRY CROW,	B.E. 1910,	Whitney, N. C.
Electrician with Aluminum Co. of America.		
RAYMOND CROWDER,	B.E. 1915,	Wilkinsburg, Pa.
Graduate Student, Westinghouse Elec. and Mfg. Co.		
CHARLES LEE CRUSE,	B.S. 1912,	Statesville, N. C.
Veterinarian.		
FELIX GRAY CRUTCHFIELD,*	B.E. 1901,	Winston-Salem, N. C.
Salesman, Atlantic Refining Co., Cleveland, Ohio.		
EUGENE ENGLISH CULBRETH,	B.E. 1903,	Raleigh, N. C.
With Commercial National Bank.		
HUGH MCCOLLUM CURRAN,	B.S. 1898,	Washington, D. C.
Department of Agriculture.		
LISTON LLOYD DAIL,	B.S. 1913,	Ensley, Ala.
Chemist, Tennessee Coal, Iron and Railroad Co.		
DALLAS THORNTON DAILY,	B.E. 1915,	Portsmouth, Va.
Civil Engineer, Seaboard Air Line Ry.		
EDWIN SPEIGHT DARDEN,	B.S. 1895,	Stantonsburg, N. C.
Farmer; Bookkeeper for Stantonsburg Supply Co.		
WALTER LEE DARDEN,	B.E. 1903,	Portsmouth, Va.
Engineer of Buildings, Seaboard Air Line Railway.		
JOSEPH FRANK DAVIDSON,	B.E. 1909,	Pedro Miguel, C.Z., Pan.
SAMUEL FREDERICK DAVIDSON,	B.S. 1914,	Swannanoa, N. C.
Assistant Director in Charge State Test Farm.		
GEORGE MASLIN DAVIS,	B.E. 1901,	Roanoke, Va.
Draftsman, Mechanical Engineer's Office, N. & W. Ry.		
PAUL DEXTER DAVIS,	B.E. 1913,	Raleigh, N. C.
District Traffic Chief, Southern Bell Telephone and Telegraph Co.		
WILLIAM EARLE DAVIS,	B.E. 1910,	Connelly Sprgs., N. C.
Clerk Connelly Mineral Springs Hotel.		
WILLIAM HURD DAVIS,	B.E. 1911,	City Point, Va.
With E. I. duPont de Nemours Powder Co.		
WILLIAM KEARNEY DAVIS,	B.E. 1895,	Marion, S. C.
Superintendent Marion Manufacturing Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
CLAUD COUNCIL DAWSON,	B.E. 1908,	Charlotte, N. C.
With S. W. Cramer.		
THOMAS THEODORE DAWSON,	B.E. 1910,	New Bern, N. C.
With New Bern Veneer and Panel Co.		
RALPH CAMPBELL DEAL,	B.E. 1912,	Clifton Forge, Va.
Virginia-Western Power Co.		
WILLIAM SAMUEL DEAN,	B.E. 1909,	Washington, D. C.
Assistant in Cotton Testing Office of Markets and Rural Organization, U. S. Department of Agriculture.		
LEONIDAS POLK DENMARK,	B.E. 1915,	Raleigh, N. C.
Draftsman for R. I. Poole, C.E.		
ERNEST COFIELD DERBY,	B.E. 1912,	Burlington, N. C.
City Engineer.		
LOUIS REINHOLD DETJEN,	M.S. 1911,	West Raleigh, N. C.
N. C. Agricultural Experiment Station.		
EDWIN SEXTON DEWAR,	B.S. 1911,	Raleigh, N. C.
Assistant Chemist, North Carolina Department of Agriculture.		
JOSEPH CHARLES DEY,*	B.S. 1895,	Norfolk, Va.
JUNIUS FRANKLIN DIGGS,	B.S. 1903,	Rockingham, N. C.
Planter and Merchant.		
ARCHIE JAY DOOLITTLE,	B.E. 1914,	Passaic, N. J.
Westinghouse, Church, Kerr & Co., Engineers, of New York City.		
CARLTON O'NEAL DOUGHERTY,	B.E. 1909,	North, S. C.
Farmer.		
MCNEELY DU BOSE,	B.E. 1912,	Morganton, N. C.
Civil and Electrical Engineer, Catawba Valley Light and Power Co.		
FRED. ATHA DUKE,	B.E. 1909,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
JAMES LEONIDAS DUNN,	B.S. 1910,	Brunswick, Ga.
County Agent, U. S. Department of Agriculture.		
ALVIN DEANS DUPREE,	B.E. 1908,	Raleigh, N. C.
Grant Clerk, Office of Secretary of State.		
RAYMOND ROWE EAGLE,	B.E. 1908,	New Bern, N. C.
Civil Engineer.		
MINNIC LUTHER EARGLE,	B.Agr. 1908,	Clemmons, N. C.
Principal, Clemmons Farm Life and High School.		
JOHN IVEY EASON,	B.S. 1911,	Stantonsburg, N. C.
Farmer.		
JACOB TATUM EATON,†	B.Agr. 1907,	Farmington, N. C.
WILLIAM HUNT EATON,	B.S. 1909,	West Raleigh, N. C.
Dairy Experimentalist, N. C. Experiment Station.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
LATTA VANDERION EDWARDS,	B.E. 1906,	Pullman, Wash.

C. E. 1911, Cornell Univ. Prof. of Railroad and Highway Engineering, Washington State College.

CHARLES PATTERSON ELDRIDGE, B.E. 1915, Newport News, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co.

SEBA ELDRIDGE, B.E. 1907, New York, N. Y.
Organizer, Committee on the Federal Constitution. Editor Community Problem Series for D. Appleton & Co.

TIMOTHY ELDRIDGE, B.E. 1904, Mount Olive, N. C.
Superintendent Electric Light Plant and Waterworks.

WILLIAM KING ELDRIDGE, B.E. 1915, Newport News, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co.

THEOPHILUS THOMAS ELLIS, B.E. 1903, Henderson, N. C.
Farmer.

WELDON THOMPSON ELLIS, B.E. 1906, West Raleigh, N. C.
M.E. 1908. Associate Professor of Machine Design and Applied Mechanics, N. C. College of Agriculture and Mechanic Arts.

LEE BORDEN ENNETT, B.S. 1895, Cedar Point, N. C.
Superintendent of County Public Schools, and Farmer.

ALBERT EDWARD ESCOTT, B.E. 1906, Charlotte, N. C.
Secretary and Treasurer, The Mill News.

WILLIAM CARLYLE ETHERIDGE, B.Agr. 1906, Gainesville, Fla.
M.S. 1908; Ph.D. (Cornell) 1915. Professor of Agronomy in University of Florida.

EARL MONTIER EVANS, B.E. 1913, Badin, N. C.
American Aluminum Co.

BENJAMIN BRYAN EVERETT, B.Agr. 1907, Palmyra, N. C.
M.S. 1912, University of Wisconsin. Farmer.

JAMES BECKETT EWART, B.E. 1906, Harthorne Station, Chicago, Ill.
Inspector, Western Electric Co.

RALPH RINGGOLD FAISON, B.S. 1909, Bridgeport, Conn.
Arms Inspector, Remington Arms Co.

WILLIAM ALEXANDER FAISON, B.E. 1909, Chester, Pa.
Superintendent Atlantic Steel Castings Co.

ARCHIE ARRINGTON FARMER, B.E. 1914, Wilson, N. C.
Electrical Engineer.

ISAAC HERBERT FARMER, B.E. 1908, Portsmouth, Va.
Right of Way Engineer, Seaboard Air Line Railway.

JAMES WILLIAM FARRIOR, B.E. 1904, Kenansville, N. C.
Physician.

WILLIAM DOLLISON FAUCETTE, B.E. 1901, Norfolk, Va.
C. E. 1910. Chief Engineer, Seaboard Air Line Railway.

ISAAC HENRY FAUST, B.E. 1895, Ramseur, N. C.
County Demonstrator, Randolph County.

Name.	*Degree.*	*Address.*

JOHN BARTLETT FEARING, JR., B.S. 1914, Hopewell, Va.
Chemist, E. I. duPont de Nemours Co.

ALEXANDER LITTLEJOHN FEILD, M.S. 1914, Pittsburgh, Pa.
Junior Physical Chemist, U. S. Bureau of Mines.

RUTLEDGE HUGHES FEILD, B.S. 1915, Taylorsville, N. C.
Manager, Brushy Mountain Orchard Co.

BENJAMIN CAREY FENNELL, B.S. 1898, Atlanta, Ga.
M.E. 1909. Engineer and Contractor. Southern Representative Nordberg Manufacturing Co., Milwaukee, Wis.

JAMES LUMSDEN FEREBEE, B.E. 1902, Milwaukee, Wis.
First Assistant to T. Chalkley Hatton, Consulting Engineer.

PERCY BELL FEREBEE, B.E. 1913, Andrews, N. C.
Transitman, U. S. Forest Service.

BENJAMIN TROY FERGUSON, B.Agr. 1908, Stantonsburg, N. C.
Farmer and Manager, Dr. S. H. Crocker.

JOHN DANIEL FERGUSON,† B.E. 1903, Bladenboro, N. C.

JOHN LINDSAY FERGUSON, B.E. 1907, Paraiso, Canal Zone.
Mechanical and Electrical Draftsman, Panama Canal.

KARL MCATEE FETZER, B.E. 1914, Rochester, N. Y.
General Railway Signal Co.

NEVIN GOULD FETZER,† B.S. 1912, Concord, N. C.

WALTER GOSS FINCH, B.E. 1905, New Bern, N. C.
Junior Engineer, U. S. Engineer Department.

WILLIAM WALTER FINLEY, B.Agr. 1904, Charlottesville, Va.
Proprietor Win Wilkes Farm.

DANIEL BURNIE FLOYD, B.E. 1913, Buffalo, N. Y.
Inspector, Bethlehem Steel Co.

FRANK FULLER FLOYD, B.E. 1893, Knoxville, Tenn.
Vice-President and Sales Manager, Jellico Coal Mining Co.

AARON CONARD FLUCK, B.E. 1915, Brooklyn, N. Y.
Apprentice, General Railway Signal Co. Home Address, Lexington, N. C.

FRANK LINDSAY FOARD, B.S. 1909, Salisbury, N. C., R. 7.
Farmer.

JAMES FONTAINE, B.E. 1914, Bladensburg, Md.
Electrical Machinist, U. S. Navy Yard, Washington, D. C.

RUFUS EUGENE FORBIS, B.E. 1910, Charlotte, N. C.
M.E. 1913. Draftsman, Peter S. Gilchrist, Consulting Engineer.

HUGH PIERCE FOSTER,† B.E. 1903, Person County.

SHIRLEY WATSON FOSTER, B.Agr. 1906, San Francisco, Cal.
Entomologist and Manager Insecticide Department, General Chemical Co.

† Deceased.

Name.	*Degree.*	*Address.*
WILLIAM BENJAMIN FOSTER,	B.E. 1915,	Portsmouth, Va.
With Harward & Moss Co., Builders.		
GEORGE WASHINGTON FOUSHEE,	B.E. 1904,	Greensboro, N. C.
Secretary and Treasurer, Dicks Laundry Co.		
ELIAS VAN BUREN FOWLER,	B.E. 1907,	Horse Shoe, N. C., R. 1.
Farmer.		
ROSCOE LOOMIS FOX,	B.E. 1909,	Kansas City, Mo.
Broker.		
FRANCIS MARION FOY,†	B.S. 1899,	Scott's Hill, N. C.
JAMES ROSCOE FRANCK,	B.S. 1914,	Richlands, N. C.
Farmer.		
CHARLES DUFFY FRANCKS,	B.E. 1893,	Fayetteville, N. C.
Superintendent Holt-Morgan Graded Schools.		
GEORGE STRONACH FRAPS,	B.S. 1896,	College Station, Tex.
Ph.D. Johns Hopkins Univ. State Chemist of Texas. Chemist Texas Experiment Station. Chemist Texas Feed Control.		
ELMO VERNON FREEMAN,	B.E. 1911,	Philadelphia, Pa.
E.E. 1913. Power Engineer, Westinghouse Electric Manufacturing Co.		
PERCY LEIGH GAINEY,	B.Agr. 1908,	Manhattan, Kas.
M.S. 1910. Soil Bacteriologist, Kansas Agricultural Experiment Station.		
EDGAR WILLIAM GAITHER,*	B.S. 1904,	Philadelphia, Pa.
JAMES JERVEY GANTT,	B.E. 1910,	Concord, N. C.
Masonry Inspector, Southern Railway Co.		
JUNIUS TALMAGE GARDNER,	B.E. 1908,	Shelby, N. C.
Railway Mail Service.		
OLIVER MAX GARDNER,	B.S. 1903,	Shelby, N. C.
Lawyer.		
CLEMENT LEINSTER GARNER,	B.E. 1907,	Washington, D. C.
United States Coast and Geodetic Survey.		
LEWIS PRICE GATTIS,	B.E. 1909,	Charleston, S. C.
City Passenger and Ticket Agent, A. C. L. Railway.		
JOHN GEORGE HARVEY GEITNER, JR.,	B.E. 1914,	McColl, S. C.
With Marlboro Cotton Mills.		
EDWARD MOORE GIBBON,	B.E. 1893,	Jacksonville, Fla.
City Engineer for South Jacksonville, and Division Engineer for J. B. McCreary Co., Engineers, Atlanta, Ga.		
NICHOLAS LOUIS GIBBON,	B.S. 1897,	Southern Pines, N. C.
General Hardware, Building Material and Auto Specialties.		
SETH MANN GIBBS,	B.E. 1908,	Savannah, Ga.
Resident Engineer, Seaboard Air Line Railway.		
THOMAS FENNER GIBSON,	B.E. 1912,	Shanghai, China.
C.E. 1915. Chief Draftsman, Standard Oil Co.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
LAMAR CARSON GIDNEY,*	B.E. 1903,	High Point, N. C.
Superintendent Lighting Department, City of High Point.		
RICHARD F. GIERSCH, JR.,	B.E. 1912,	High Point, N. C.
Engineer, Comstock Elec. Co.		
LOVIC RODGERS GILBERT,	B.E. 1907,	Raleigh, N. C.
T.E. 1915. Superintendent Caraleigh Mills Co.		
PETER MELVIN GILCHRIST,	B.S. 1915,	Laurinburg, N. C.
Farmer.		
RALPH ALLISON GILL,	B.E. 1914,	Charlotte, N. C.
Engineering Department, Southern Power Co.		
RANSOM EATON GILL,†	B.E. 1910,	Raleigh, N. C.
ROY JOSEPH GILL,	B.E. 1907,	Washington, D. C.
With U. S. Land Office, Field Division.		
GEORGE WILLIAM GILLETTE,	B.E. 1911,	Wilmington, N. C.
Claim Agent, Tidewater Power Co.		
MAURICE MORDECAI GLASSER,	B.E. 1908,	Charleston, S. C.
Proprietor Standard Electric Co. and M. M. Glasser Electric and Mfg. Co.		
JOHN HOWARD GLENN,†	B.E. 1903,	Crowder's Creek, N. C.
CHARLES WILLIS GOLD,	B.S. 1895,	Greensboro, N. C.
Treasurer Jefferson Standard Life Insurance Co.		
MOSES HENRY GOLD,	B.E. 1908,	Savannah, Ga.
Division Engineer, Seaboard Air Line Railway.		
ROY DURANT GOODMAN,	B.S. 1913,	Concord, N. C., R. 2.
Farm Demonstrator, Cabarrus County.		
CICERO FRED GORE,	B.E. 1913,	Weldon, N. C.
Assistant to Superintendent and Engineer Highways, Halifax County.		
ALBERT SIDNEY GOSS,*	B.E. 1909,	Wilson, N. C.
With Brett Engineering and Contracting Co.		
JOHN DAVID GRADY,	B.Agr. 1908,	Seven Springs, N. C., R. 1.
Farmer.		
ROBERT WALTER GRAEBER,	B.S. 1911,	Charlotte, N. C.
County Agent Farmers' Coöperative Demonstration Work.		
WILLIAM HAYWOOD GRAHAM, JR.,	B.E. 1912,	Macon, Ga.
District Traffic Chief, Southern Bell Telephone and Telegraph Co.		
ROBERT STRICKLER GRAVES,	B.E. 1907,	Cincinnati, Ohio.
District Meter Specialist, General Electric Co.		
CHARLIE POOL GRAY,*	B.E. 1909,	Avon, N. C.
FRANK TEMPLE GRAY,	B.E. 1915,	Charlotte, N. C.
Draftsman for Southern Bell Telephone Co.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
GEORGE PENDER GRAY,*	B.S. 1893,	Tarboro, N. C.
JAMES MILLER GRAY,	B.S. 1910,	Cullasaja, N. C.
Farmer.		
STERLING GRAYDON,	B.E. 1905,	Charlotte, N. C.
President and Superintendent Atherton Mills.		
ANDREW HARTSFIELD GREEN, JR.,	B.S. 1909,	Raleigh, N. C.
With Commercial National Bank.		
MARION JACKSON GREEN,	B.S. 1896,	Charlotte, N. C.
Pattern-maker, the Cole Manufacturing Co.		
ARTHUR WYNNS GREGORY,	B.S. 1906,	Shanghai, China.
Sales Manager, Wuhu Office, British-American Tobacco Co.		
PAUL STIREWALT GRIERSON,	B.E. 1904,	New York, N. Y.
Chief Draftsman, Charles Cory & Son.		
WILLIAM HENRY GRIFFIN, JR.,	B.E. 1914,	Goldsboro, N. C.
Junior Member, W. H. Griffin & Son, Coal and Wood Dealers.		
JOSEPH PERRIN GULLEY, JR.,	B.E. 1904,	Norfolk, Va.
Traveling Salesman, Woodhouse Electric Co.		
EMIL GUNTER,†	B.E. 1903,	Tallahassee, Fla.
WINSTON PAYNE GWATHMEY,	B.E. 1913,	Richmond, Va.
City Draftsman.		
JAMES HOLMES HADDOCK,	B.E. 1915,	Stonewall, Miss.
Accountant's Assistant, Stonewall Cotton Mills.		
DORSEY YATES HAGAN,	B.E. 1908,	Greensboro, N. C.
Surveyor.		
FELIX STANTON HALES,	B.E. 1913,	Ithaca, N. Y.
Student Cornell University. Home Address, Wilson, N. C.		
CHARLES GANZER HALL,	B.E. 1913,	Taunton, Mass.
With Whittenton Manufacturing Co.		
JOHN HUBBARD HALL, JR.,	B.S. 1915,	Mount Olive, N. C.
Farming for J. A. Westbrook.		
HORACE LESTER HAMILTON,	B.E. 1906,	New York, N. Y.
Advertising Manager, The Fairbanks Co.		
WILLIAM ROY HAMPTON,	B.S. 1909,	Plymouth, N. C.
Owner firm of W. H. Hampton & Son, Inc., Merchants and Bankers.		
LEROY CORBETT HAND,	B.E. 1913,	Chadbourn, N. C.
Vice-President Chadbourn Hardware Co.		
JOHN ISAAC HANDLEY,	B.S. 1914,	Charlotte, N. C.
Veterinarian.		
SAMUEL MERRILL HANFF,	B.S. 1900,	Wadesboro, N. C.
Episcopal Clergyman.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
JOHN FREDERICK HANSELMAN,	B.E. 1906,	Waverly, Va.
Proprietor the Central Garage.		
GEORGE ROM. HARDESTY,	B.E. 1907,	Goldsboro, N. C.
Chief Engineer, State Hospital.		
PHILIP WILLIAM HARDIE,	B.E. 1907,	Greensboro, N. C.
Engineer.		
JARVIS BENJAMIN HARDING,	B.E. 1904,	Greenville, N. C.
C.E. 1909. Civil Engineer.		
ROBERT MCKENZIE HARDISON,	B.E. 1912,	Charlotte, N. C.
Southern Power Co.		
NATHAN DAVID HARGROVE,	B.S. 1912,	Richmond, Va.
Manager A. W. Hargove, Paints and Wall Papers.		
RICHARD HUGH HARPER,	B.S. 1905,	Patterson, N. C.
With Gwyn-Harper Manufacturing Co.		
GEORGE ROLAND HARRELL,	B.S. 1900,	Grasselli, N. J.
With Grasselli Chemical Co.		
JOHN WILLIAM HARRELSON,	B.E. 1909,	West Raleigh, N. C.
M.E. 1915. Assistant Professor of Mathematics, N. C. College of Agriculture and Mechanic Arts.		
CEBURN DODD HARRIS,	B.S. 1897,	Anchorage, Ky.
Ferguson, Scott & Harris, Fire Insurance.		
GORDON HARRIS,	B.E. 1909,	Schenectady, N. Y.
E.E. 1914. Lighting Engineering Department, General Electric Co.		
RUSSELL PEYTON HARRIS,	B.S. 1915,	Louisburg, N. C.
Farming.		
THOMAS DEVIN HARRIS,	B.E. 1911,	Oxford, N. C., R. 3.
Engineer and Surveyor.		
WILLIAM HENRY HARRISS,	B.E. 1895,	New York, N. Y.
M.E. 1896. Textile Broker.		
HENRY MERCER HARSHAW,	B.E. 1915,	City Point, Va.
Electrician, DuPont Co.		
THOMAS ROY HART,	B.E. 1913,	Hopedale, Mass.
Traveling Erector of Machinery for Draper Co. Home Address, Monroe, N. C.		
HARRY HARTSELL,	B.E. 1912,	Charleston, S. C.
Undertaker.		
JOHN HARVEY, JR.,	B.E. 1914,	Chapel Hill, N. C.
Student, University of North Carolina.		
FRANK HAWKS,	B.E. 1910,	Wilmington, N. C.
Draftsman, Atlantic Coast Line R. R.		
EDMUND BURKE HAYWOOD,	B.E. 1910,	Raleigh, N. C.
Assistant to Commissioner of Public Works and City Engineer.		
THOMAS FREDERICK HAYWOOD,†	B.E. 1909,	Trenton, N. C.

† Deceased.

Name.	*Degree.*	*Address.*
JOKTAN LAFAYETTE HEMPHILL,	B.E. 1907,	Schenectady, N. Y.
Engineer, General Electric Co.		
HARRY BENJAMIN HENDERLITE,	B.E. 1915,	Atlanta, Ga.
Salesman, The Mosler Safe Co. of Hamilton, Ohio. Home Address, Raleigh, N. C.		
LEONARD HENDERSON,	B.E. 1909,	Salisbury, N. C.
MAURICE HENDRICK,	B.E. 1908,	Cliffside, N. C.
Overseer Spinning, Cliffside Mills.		
VERNON RAY HERMAN,	B.S. 1915,	West Raleigh, N. C.
With N. C. Agricultural Experiment Station.		
LAWRENCE JAMES HERRING,	B.Agr. 1907,	Wilson, N. C.
Veterinarian. D.V.S., Kansas City Veterinary College.		
JERE. ISAAC HERRITAGE,	B.E. 1905,	Jacksonville, N. C.
Civil Engineer, John L. Roper Lumber Co.		
THOMAS JASPER HEWITT,	B.E. 1913,	New Bern, N. C.
Junior Engineer, U. S. Engineering Department.		
CLARENCE WILSON HEWLETT,	B.E. 1906,	Baltimore, Md.
M.A., Ph.D., Johns Hopkins. James Buchanan Johnston Scholar, Johns Hopkins University.		
RUFUS WILLIAMS HICKS, JR.,	B.E. 1910,	New York, N. Y.
M.E. 1915. Mechanical Engineer, Workmen's Compensation Service Bureau.		
BASCOMBE BRITT HIGGINS,	B.S. 1909,	Experiment, Ga.
M.S. 1910; Ph.D. 1913, Cornell University. Botanist, Georgia Agricultural Experiment Station.		
LYDA ALEXANDER HIGGINS,	B.S. 1910,	Starkville, Miss.
Agent in Dairying, Dairy Division, U. S. Department of Agriculture.		
RILEY WEAVER HIGGINS,	B.S. 1913,	Riceville, Tenn., R. 6.
Farmer.		
JAMES ALLAN HIGGS, JR.,	B.E. 1906,	Knoxville, Tenn.
C.E. 1910. Member Firm, Higgs & Peckinpaugh, Engineers-Contractors.		
JERE. EUSTIS HIGHSMITH,	B.S. 1897,	Parkersburg, N. C.
Farmer.		
DANIEL HARVEY HILL, JR.,	B.S. 1909,	Charlotte, N. C.
Associate Editor, Southern Textile Bulletin.		
DAVID RAYMOND HINKLE,	B.E. 1911,	Milstead, Ga.
Overseer Carding, Milstead Mills.		
GUY FRANCIS HINSHAW,	B.E. 1907,	Winston-Salem, N. C.
C.E. 1915. Hinshaw & Zigler, Civil Engineers.		
GEORGE HERBERT HODGES,	B.E. 1904,	Fairchance, Pa.
Superintendent Kyle Mine, H. C. Frick Coke Co.		
EDGAR ALLAN HODSON,	M.S. 1914,	West Raleigh, N. C.
B.S. (A. P. I.) 1911. Instructor in N. C. College of Agriculture and Mechanic Arts.		

Name.	*Degree.*	*Address.*

LABAN MILES HOFFMAN, JR., B.E. 1905, Dallas, N. C.
Cashier Bank of Dallas.

WILLIS ASKEW HOLDING, B.S. 1912, Knoxville, Tenn.
College of Agriculture and Experiment Station, University of Tennessee.

CHARLES BOLLING HOLLADAY, B.E. 1893, Wilmington, Del.

PETER ARMSTRONG HOLT, B.S. 1913, Graham, N. C.
Office Clerk, L. Banks Holt Manufacturing Co.

WILLIAM NORMAN HOLT, B.E. 1907, Norfolk, Va.
Traveling Salesman, The Texas Co.

BENJAMIN OLIVER HOOD, B.E. 1901, New York, N. Y.
Structural Engineer, F. A. Burdett & Co., Consulting Engineers.

LOUIE LEE HOOD, B.E. 1910, Greensboro, N. C.
With Greensboro Music Co.

DAVID LEE HOOPER, B.E. 1915, Newport News, Va.
Draftsman, C. E. Dept., Newport News Shipbuilding and Dry Dock Co.

HERNDON HOPKINS, B.S. 1915, Greensboro, N. C.
Farming.

WALTER CLEARY HOPKINS, B.E. 1913, Baltimore, Md.
Bridge Draftsman, Western Maryland Railway Co.

WAYNE ARINGTON HORNADAY, B.S. 1909, Greensboro, N. C.
M.S. 1910; D.V.M., Kansas City Veterinary College.
Veterinarian. City Milk and Meat Inspector.

JOHN HOWARD, B.S. 1896, Middlesboro, Ky.
Attorney at Law.

JESSE McRAE HOWARD, B.E. 1904, Concord, N. C.
Overseer Dyeing, Gibson Manufacturing Co.

JOHN STEWART HOWARD, B.S. 1915, Cary, N. C.
Teacher of Agriculture, Cary Farm Life School.

ROBERT IRVING HOWARD, B.E. 1902 (Tex.), Conetoe, N. C.
Civil Engineer.

SAMUEL BENJAMIN HOWARD, B.E. 1913, Morganton, N. C.
Civil and Highway Engineer.

RALPH WILKINSON HOWELL, B.S. 1912, Terra Ceia, N. C.
Development of Newly Reclaimed Swamp Lands.

JESSE FRANCIS HUETTE, B.E. 1914, Newport News, Va.
Machinist, Newport News Shipbuilding and Dry Dock Co.

BRANTON FAISON HUGGINS, B.E. 1904, Griffin, Ga.
Member Firm, Beck-Huggins Co., Contractors and Engineers.

HENRY ALLEN HUGGINS, B.S. 1900, Wilmington, N. C.
Bookkeeper, George W. Huggins, Jeweler.

CHRISTOPHER MILLER HUGHES, B.E. 1895, Richmond, Va.
B.S. 1899. Wholesale Lumber Dealer.

LLOYD RAINEY HUNT, B.E. 1905, Lexington, N. C.
Superintendent Lexington Light and Water Department.

Name.	*Degree.*	*Address.*
HILL MCIVER HUNTER,	B.E. 1904,	Greensboro, N. C.
Purchasing Agent White Oak Mills, Proximity Print Works, Proximity Mills.		
MALCOLM BEALL HUNTER,	B.E. 1895,	Charlotte, N. C.
President Acme Plumbing and Heating Co.		
WILLIAM TISDALE HURTT,	B.E. 1914,	Wilkinsburg, Pa.
Power Engineer, Duquesne Light Co.		
JOHN WILLIAM IVEY,	B.E. 1909,	Seven Springs, N. C.
Farmer.		
WILLIAM COLBERT JACKSON,	B.S. 1896,	Wake Forest, N. C.
Farmer.		
GEORGE LINWOOD JEFFERS,	B.E. 1915,	Wilkinsburg, Pa.
Graduate Student Apprentice, Westinghouse Elec. and Mfg. Co.		
ERNEST JUDSON JEFFRESS,	B.E. 1913,	Hamlet, N. C.
With Yadkin River Power Co.		
DOUGLAS CREELMAN JEFFREY,	B.E. 1913,	Sarnia, Ont., Canada.
Draftsman, Imperial Oil Co., Ltd.		
WILLIAM LEON JEWELL,	B.E. 1914,	Sanford, N. C.
With Joe W. Stout & Co., Inc., General Contractors.		
LACY JOHN,	B.S. 1914,	Lumber Bridge, N. C.
Farmer.		
EUGENE COLISTUS JOHNSON,	B.E. 1903,	Ingold, N. C.
Lumberman and Farmer.		
JAMES WRIGHT JOHNSON,	B.E. 1913,	Seymour, Conn.
Electrical Engineer, Seymour Mfg. Co.		
W. F. R. JOHNSON,	B.E. 1909,	Dillon, S. C.
Johnson & Johnson, Civil Engineers.		
WILLIS NEAL JOHNSTON,	B.E. 1914,	Montgomery, Ala.
Salesman, De Laval Separator Co.	Home Address, Mooresville, N. C.	
ALBERT CARL JONES,	B.Agr. 1907,	High Point, N. C.
D.V.S., Kansas City Veterinary College.	Veterinarian, Meat and Milk Inspector.	
FREDERICK JOHN JONES,	B.E. 1909,	Washington, D. C.
Junior Civil Engineer, Interstate Commerce Commission. Home Address, New Bern, N. C.		
GARLAND JONES, JR.,	B.S. 1900,	Jacksonville, Fla.
ROBERT FRANK JONES,	B.E. 1910,	Florence, S. C.
Resident Engineer, Atlantic Coast Line R. R.		
WILLIAM MANLEY JONES,	B.E. 1914,	Raleigh, N. C.
Clerk to Clerk of Wake County Superior Court.		
WILLIAM WHITMORE JONES,	B.E. 1907,	Franklin, N. C.
Manager Franklin Telephone and Electric Co.		
CLYDE RAYMOND JORDAN,	B.E. 1910,	Currie, N. C.
Owner and Operator of Lumber Plant.		

Name.	*Degree.*	*Address.*

HARVEY LANGILL JOSLYN, B.S. 1913, West Raleigh, N. C.
Instructor in Soils, N. C. College of Agriculture and Mechanic Arts.

SIR KEITH KELLER, B.E. 1914, Yoakum, Texas.
Division Engineer, S. A. & A. P. Ry.

JOHN GORDON KELLOGG, B.S. 1912, Hartford, Conn.
With the Connecticut General Life Insurance Co.

MARTIN KELLOGG, B.Agr. 1901, Sunbury, N. C.
Farmer.

CLYDE BENNETT KENDALL, B.S. 1897, Washington, D. C.
Topographic Engineer, U. S. Geological Survey.

ALPHEUS ROUNTREE KENNEDY, B.S. 1898, Quincy, Mass.
Ship Draftsman, Fore River Shipbuilding Co.

JAMES MATTHEW KENNEDY, B.E. 1903, Raleigh, N. C.
Architect.

SYDNEY G. KENNEDY, B.S. 1897, Sanford, Fla.
Shop Foreman, Atlantic Coast Line R. R.

ARTHUR TEMPLETON KENYON, B.E. 1905, Douglas, Ariz.
Co. D, 11th Infantry, U. S. Army.

WILLIAM KERR, B.S. 1904, Hayden, N. M.
M.S. 1912, V. P. I. Farmer.

GEORGE EDISON KIDD, B.E. 1913, Schenectady, N. Y.
General Electric Co. Home Address, Paw Creek, N. C.

WAVERLY FLETCHER KILPATRICK, B.S. 1915, Asheville, N. C.
Assistant Cashier, Southern Express Co.

PAUL KING, B.E. 1914, Ithaca, N. Y.
Student, Cornell University. Home Address, Emporia, Va.

LUTHER HILL KIRBY, B.E. 1910, Manila, P. I.
Civil Engineer, Bureau of Lands.

SAM JONES KIRBY, B.S. 1912, Dallas, N. C.
Supervisor of Agricultural Instruction of Gaston County.

WILLIAM FRANKLIN KIRKPATRICK, B.E. 1904, Storrs, Conn.
B.Agr., 1905. Professor of Poultry Husbandry, Conn. Agricultural College.

JOSEPH LAWRENCE KNIGHT, B.S. 1897, Pittville, Fla.
Pas Manufacturing Co., Naval Stores.

LOUIS BRASWELL KNIGHT, B.S. 1913, Tarboro, N. C.
Farmer.

ROBERT VERNON KNIGHT, B.S. 1915, Raleigh, N. C.
Laboratory Assistant, N. C. Department of Agriculture.

STARR NEELY KNOX, B.E. 1905, Charlotte, N. C.
Assistant Engineer, Southern Railway Co.

Name.	*Degree.*	*Address.*
WILLIAM GRAHAM KNOX,	B.S. 1906,	New York, N. Y.
Research and Development Laboratory, Chemical Branch, Western Electric Co.		
JAMES HERRITAGE KOONCE,†	B.E. 1905,	Richlands, N. C.
LAFAYETTE FRANCK KOONCE,	B.Agr. 1907,	Raleigh, N. C.
D.V.M. 1909, Kansas City Veterinary College. Veterinary Surgeon.		
FRANK KIPP KRAMER,	B.E. 1915,	Elizabeth City, N. C.
With Kramer Bros. & Co., Lumber Manufacturers and Dealers.		
HERBERT WILLIAM KUEFFNER,	B.E. 1908,	Durham, N. C.
City Engineer.		
FREDERICK CREECY LAMB,	B.S. 1898,	El Paso, Tex.
Chemist, City Health Office.		
CLAUDE MILTON LAMBE,	B.E. 1908,	Raleigh, N. C.
Civil Engineer, Carolina Power and Light Co.		
CARL JOSHUA LAMBETH,	B.E. 1912,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
BENNETT LAND, JR.,	B.E. 1903,	Tampa, Fla.
Division Engineer, Seaboard Air Line Railway.		
JOHN THOMAS LAND,	B.E. 1903,	Jacksonville, Fla.
Engineer, Port Commissioners.		
MARK CLINTON LASITTER,	B.E. 1910,	Snow Hill, N. C.
County Surveyor.		
JAMES EDWARD LATHAM,	B.S. 1909,	Washington, N. C., R. 3.
Farming.		
CHARLES EDWARD LATTA,	B.E. 1908,	Raleigh, N. C.
DOUGLAS ALLEN LEARD,	B.E. 1914,	Portsmouth, Va.
Assistant Right of Way Engineer, Seaboard Air Line Railway.		
CURTIS WILLIAMS LEE,	B.E. 1912,	Monroe, N. C.
Superintendent Water and Light Plant.		
EUGENE TALMAGE LEE,	B.E. 1910,	Dunn, N. C.
Postmaster.		
JOSEPH RAOUL LEGUENEC,	B.E. 1915,	Abbeville, La.
Engineer for W. B. Knox, Civil Engineer.		
IRVIN TRACY LEWIS,	B.S. 1915,	Kansas City, Mo.
Student, Kansas City Veterinary College.		
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Manager Diggs Farm.		
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Salesman, Power and Mining Department, General Electric Co.

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Civil Engineer.

ERNEST ERWIN LINCOLN, B.E. 1904, Phœnixville, Pa.
Draftsman, the Phœnix Bridge Co.

JESSE WEBB LINDLEY, B.S. 1915, Andrews, N. C.
Farm Manager for W. N. Cooper.

DAVID LINDSAY, B.E. 1908, Draper, N. C.
Assistant Superintendent German-American Co.

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Salesman, General Electric Co.

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Farming.

MARION LAMAR LIVERMON, B.E. 1914, Phoenixville, Pa.
Draftsman, the Phœnix Bridge Co.

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Bureau of Entomology, U. S. Department of Agriculture.

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Salesman, Liggett & Myers Tobacco Co.

LOUIS EDGAR LOUGEE, B.S. 1907, Vandergrift, Pa.
Assistant Chemist, American Sheet and Tin Plate Co.

LEWIS OMER LOUGEE, B.E. 1901, Pittsburgh, Pa.
Civil and Mining Engineer. Member Firm George S. Baton & Co.

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Foreman, Department of Maintenance, Southern Power Co.

JOE POINDEXTER LOVILL,† B.E. 1906, Mount Airy, N. C.

GEORGE LAFAYETTE LYERLY, B.E. 1908, Hickory, N. C.
Manager and Partner, Shuford Hardware Co.

LIPSCOMB GOODWIN LYKES, B.E. 1905, Habana, Cuba.
Vice-President Lykes Brothers, Inc.

THOMPSON MAYO LYKES, B.E. 1906, Tampa, Fla.
Secretary and Treasurer The Lykes Co. Secretary Tampa Packing Co.

GEORGE GREEN LYNCH, JR., B.E. 1905, Wilmington, N. C.
Draftsman, Atlantic Coast Line R. R.

ALBERT SYDNEY LYON, B.S. 1899, Rocky Mount, N. C.
Superintendent Rocky Mount Public Works.

EDMOND SHAW LYTCH, B.E. 1903, Laurinburg, N. C.
Partner, Laurinburg Machine Co.

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† Deceased.

Name.	*Degree.*	*Address.*
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DONALD GRATTAN MCARN,	B.E. 1915,	Charlotte, N. C.
Meter Department, Southern Power and Light Co.		
FRANK WHITESIDE MCCOMB,	B.E. 1913,	Hickory, N. C.
Dairyman.		
HENRY KREIGER MCCONNELL,	B.S. 1907,	Louisville, Ky.
Assistant Chemist, Kentucky Tobacco Products Co.		
EUGENE RICHARD MCCRACKEN,	B.E. 1911,	Graham, N. C.
Cotton Classer.		
THOMAS ROBERT MCDEARMAN,	B.E. 1914,	Rocky Mount, N. C.
FRANK NEELY MCDOWELL,	B.S. 1910,	West Raleigh, N. C.
Soil Survey, Agronomy Division, N. C. State Department of Agriculture.		
JAMES EDWARD MCGEE,	B.E. 1912,	Rosemary, N. C.
With Patterson Mills Co.		
MALCOLM ROLAND MCGIRT,	B.Agr. 1905,	Durham, N. C.
County Agent, Farm Demonstration Work.		
WALTER HOGE MACINTIRE,	B.S. 1905,	Knoxville, Tenn.
Soil Chemist, Agricultural Experiment Station, University of Tennessee.		
JOHN FAIRLY MCINTYRE,	B.E. 1904,	Laurinburg, N. C.
Farmer.		
SAMUEL CHRISTOPHER MCKEOWN,	B.E. 1895,	Sumter, S. C.
Chief Engineer, Sumter Electrical Works of the Splitdorf Electrical Co. of Newark, N. J.		
CHARLES MCKIMMON, JR.,	B.S. 1911,	Ensley, Ala.
Chemist, Tennessee Coal and Iron Co.		
JAMES MCKIMMON,	B.E. 1904,	Raleigh, N. C.
With McKimmon & McKee, Real Estate and Insurance.		
JOHN LUTHER MCKINNON,	B.Agr. 1902,	Laurinburg, N. C.
Farmer.		
JAMES WILLIAM MCKOY,	B.E. 1893,	Black Mountain, N.C.
Civil Engineer and Merchant.		
HORACE SMITH MCLENDON,	B.Agr. 1906,	Fort Pierce, Fla.
Farm Demonstration Agent, St. Lucie County.		
LENNOX POLK MCLENDON,	B.S. 1910,	Durham, N. C.
Member of the Firm of McLendon & Hedrick, Lawyers.		
WALTER JONES MCLENDON, JR.,	B.S. 1897,	Knoxville, Tenn.
President Capitola Manufacturing Co. of Marshall, N. C., and President Prendergast Cotton Mills of Prendergast, Tenn.		
OSCAR FRANKLIN MCNAIRY,	B.E. 1907,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Ry. Home Address, Greensboro, N. C.		

Name.	*Degree.*	*Address.*
JAMES EDGAR MCNEELY,	B.E. 1914,	Atlanta, Ga.
With Exposition Cotton Mills.		
SAMUEL HUXLEY MCNEELY,	B.E. 1909,	Buffalo, N. Y.
Commercial Engineer, Allis Chalmers Co.		
HARVEY CAMPBELL MCPHAIL,	B.S. 1914,	Mount Olive, N. C.
Dairyman and Farmer.		
CHARLES HARDEN MCQUEEN,	B.E. 1901,	Boston, Mass.
Inspector Bitulithic Pavements, Warren Brothers Co.		
NEILL MCQUEEN,	B.E. 1912,	Atlanta, Ga.
Superintendent of Machinery, Exposition Cotton Mills.		
SAMUEL MACON MALLISON,	B.E. 1909,	Washington, N. C.
Hardware Dealer.		
CARROLL LAMB MANN,	B.S. 1899,	West Raleigh, N. C.
C.E. 1906. Civil Engineer and Professor of Railroad Engineering, N. C. College of Agriculture and Mechanic Arts.		
LOUIS HENRY MANN,	B.E. 1900,	Washington, N. C.
Dentist.		
WALTER RAY MANN,	B.S. 1912,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
WILLIAM LEAKE MANNING,	B.E. 1910,	Rosemary, N. C.
With Rosemary Manufacturing Co.		
CLARENCE TALMAGE MARSH,	B.E. 1908,	Fort Screven, Ga.
First Lieutenant, Coast Artillery Corps, U. S. A.		
WILLIAM ROYDAN MARSHALL,	B.E. 1909,	New York, N. Y.
Salesman, Westinghouse Electric and Mfg. Co.		
JACOB LEE MARTIN,	B.E. 1911,	Graham, N. C.
Civil Engineer.		
WILLIAM DANIEL MARTIN,	B.E. 1915,	West Raleigh, N. C.
Instructor in Wood Shop, N. C. College of Agriculture and Mechanic Arts.		
RALPH CECIL MASON,	B.S. 1909,	Harrellsville, N. C.
Farmer.		
ARTHUR BALLARD MASSEY,	B.S. 1909,	Auburn, Ala.
Assistant Professor of Botany, Alabama Polytechnic Institute.		
WALTER JEROME MATTHEWS,	B.E. 1893,	Goldsboro and Kinston, N. C.
Contractor and Builder.		
ROBERT SYLVANUS MAUNEY,	B.E. 1913,	Schenectady, N. Y.
With Electrical Testing Department, General Electric Co.		
RAYMOND MAXWELL,	B.E. 1906,	Seven Springs, N. C.
Owner and Proprietor Seven Springs Hotel and Wholesale Grocery at New Bern, N. C.		
MELVIN SOLOMON MAYES,	B.E. 1910,	Stem, N. C.
With Stem Mercantile Co.		

Name.	*Degree.*	*Address.*
Frank Theophilus Meacham,	B.S. 1893,	Statesville, N. C.

M.S. 1894. Superintendent Experiment Station, U. S. Department of Agriculture.

Eugene Franklin Meador, B.E. 1907, Danville, Va.
With Gardner & Jones.

Robert Tolar Melvin, B.S. 1913, Supply, N. C.
County Agent.

Henry Bascom Mercer, B.E. 1912, Portsmouth, Va.
Valuation Department, S. A. L. Railroad.

Lewis Larkins Merritt, B.E. 1913, Wilmington, N. C.
Junior Engineer, U. S. Engineering Department.

Repton Hall Merritt, B.S. 1897, Raleigh, N. C.
Secretary-Treasurer Powell & Powell, Inc., Coal, Ice, and Wood.

Robert Graham Mewborne, B.S. 1896, Louisville, Ky.
Chemist, Kentucky Tobacco Product Co.

Bennett Taylor Mial, B.E. 1907, Philadelphia, Pa.
Manager of Erection, Belmont Iron Works.

Thomas Kenneth Mial, B.E. 1913, Clayton, N. C.
Farmer.

Frank Curtis Michael, B.E. 1907, Gastonia, N. C.
E.E. 1915. Electrical Engineer and Constructor.

Joseph Edgar Michael, B.S. 1914, Parlin, N. J.
Assistant Chemist, Union Powder Corporation.

David John Middleton, B.Agr. 1908, Snow Hill, N. C.
Demonstration Agent, Greene County.

Joseph Alfred Miller, Jr., B.E. 1904, Brevard, N. C.
Manager Miller Supply Co.

Walker Morehead Millner, B.E. 1909, City Point, Va.
Supervisor, DuPont Powder Co.

John Maple Mills, B.E. 1907, Raleigh, N. C.

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Foos Gas Engine Co.

Thomas Guy Monroe, B.S. 1914, Winston-Salem, N. C.
Dairyman for R. J. Reynolds.

Benjamin Franklin Montague, B.E. 1909, Johnson City, Tenn.
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Assistant Chemist, Mississippi State Laboratory.

Leon Davis Moody, B.E. 1910, East Laport, N. C.
Farming.

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Chemist, with Nitrogen Products Co.

Name.	*Degree.*	*Address.*

EUGENE BOISE MOORE, B.E. 1910, Toledo, Ohio.
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ROBERT LEE MORGAN,† B.E. 1910, Silver City, N. M.

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Farmer and County Surveyor.

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General Superintendent of Clayton Oil Mill Co. and Chatham Oil and Fertlizer Co.

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Farmer.

ROBERT HALL MORRISON, B.E. 1900, Salisbury, N. C.
President Machinery Supply Co.

ROBERT LEE MORRISON, B.E. 1911, Concord, N. C.
Paving Engineer for City of Concord.

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Thompson & Moseley, Inc., Contractors.

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Assistant Engineer, Seaboard Air Line Railway.

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Managing Chemist, Chas. Pfizer & Co., Inc.

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Assistant Engineer, Board of Water Supply, City of New York.

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General Foreman, Fortification Division, Panama Canal.

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LEON ANDREWS NEAL,	B.E. 1904,	Roanoke, Va.
Resident Engineer, Virginia Iron, Coal and Coke Co.		
WILLIAM MCCORMICK NEALE,	B.E. 1910,	Greenville, S. C.
Chief Draftsman, American Machine and Manufacturing Co.		
CHARLES MCKEE NEWCOMB,	B.E. 1912,	Greer, S. C.
Civil Engineer, Southern Railway.		
ROBERT TIMBERLAKE NEWCOMB,	B.S. 1915,	Greer, S. C.
Timekeeper, Southern Railway.		
THOMAS WINSTON NICHOLLS,	B.E. 1914,	Philadelphia, Pa.
Engineering Department, American Telephone and Telegraph Co.		
CHARLES ARTHUR NICHOLS,	B.E. 1902,	Muskogee, Okla.
Manager Third Street Grocery Co.		
EDGAR BYRON NICHOLS,	B.E. 1914,	West Raleigh, N. C.
Instructor in N. C. College of Agriculture and Mechanic Arts.		
CHARLES FRANKLIN NIVEN,	B.Agr. 1906,	Clemson College, S. C.
Assistant Professor of Horticulture, Clemson College.		
LOLA ALEXANDER NIVEN,	B.Agr. 1906,	Atlanta, Ga.
Editor, Southern Farming.		
WILLIAM TIMOTHY NIXON,	B.S. 1913,	Sunbury, N. C.
Farmer.		
LEWIS MILTON ODEN,	B.Agr. 1906,	Wilmington, Del.
Office of E. I. DuPont Powder Co.		
THOMAS JEFFERSON OGBURN, JR.,	B.E. 1906,	Richmond, Va.
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ALBERT HICKS OLIVER,	B.S. 1897,	Mount Olive, N. C.
Farmer.		
SAMUEL LOFTIN OLIVER,	B.E. 1909,	Clinton, N. C.
Superintendent Sampson Power Co.		
KARL OSBORNE,	B.E. 1915,	Lillington, N. C.
Civil Engineer, Atlantic and Western Railway.		
JAMES ELWOOD OVERTON,	B.Agr. 1907,	Ahoskie, N. C.
Traveling Grader, Inspector and Peanut Buyer for American Peanut Corporation.		
DAVID STARR OWEN,	B.E. 1903,	Savannah, Ga.
General Superintendent Atlantic Turpentine and Pine Tar Co.		
EDWIN BENTLEY OWEN,	B.S. 1898,	West Raleigh, N. C.
Registrar, N. C. College of Agriculture and Mechanic Arts.		
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Member of firm of Parker Bros. & Co., Cotton Brokers and Merchants.		
Eugene Leroy Parker,	B.S. 1899,	Mt. Pleasant, Tenn.
Chemist and Manager, E. L. Parker & Co.		
John Harvey Parker,	B.E. 1903,	New Bern, N. C.
With Burrus & Parker, Inc.		
James Lafayette Parker,	B.E. 1902,	New York, N. Y.
Assistant Engineer, Herbert C. Keith, Consulting Engineer.		
Julius Monroe Parker,	B.E. 1909,	Harlan, Ky.
Civil Engineer, Louisville and Nashville Railway Co.		
Thomas Franklin Parker,	B.Agr. 1907,	Raleigh, N. C.
M.S. 1908. Farmer and Field Agent, Crop Estimates for N. C., U. S. Department of Agriculture.		
Walter Herbert Parker,	B.E. 1913,	East Pittsburgh, Pa.
Technical Apprentice, Westinghouse Machine Co.		
Fred Maynard Parks,	B.E. 1907,	Wilkinsburg, Pa.
Electrician, Westinghouse Electric and Manufacturing Co.		
Thaddeus Rowland Parrish,	B.E. 1913,	Philadelphia, Pa.
Science and Arts Assistant, The Franklin Institute.		
John Gilbert Paschal,	B.E. 1909,	Maxton, N. C.
Lumber Manufacturer.		
Arthur Lee Paschall,	B.Agr. 1907,	San Simon, Ariz.
Farm Adviser for Cochise and Santa Cruz Counties.		
William Franklin Pate,	B.S. 1901,	Raleigh, N. C.
M.S. 1913. Soil Fertility, Division of Agronomy, N. C. Department of Agriculture.		
Mann Cabe Patterson,	B.E. 1895,	Durham, N. C.
Machinist, Durham Motor Car Co.		
Robert Donnell Patterson,	B.S. 1894,	Chase City, Va.
M.S., 1898. President the First State Bank.		
Fitzgerald Elizur Patton,	B.S. 1914,	Burnsville, N. C.
Farm Demonstrator for Yancey County, U. S. Dept. of Agriculture.		
William Joel Patton,	B.E. 1904,	Dallas, Texas.
Electrician, Sanger Bros.		
William Robert Patton,	B.E. 1914,	Spartanburg, S. C.
With Southern Railway Co.		
William Victor Pearsall,	B.S. 1915,	Wilmington, N. C.
Fertilizer Department, Pearsall & Co.		
Charles Pearson,	B.E. 1894,	Lagrange, Ga.
Member of firm, General Engineering Construction Co., General Contractors.		

Name.	*Degree.*	*Address.*

FRED. TAYLOR PEDEN, B.S. 1911, Springdale, N. C.
Agent in Animal Husbandry, United States and North Carolina Departments of Agriculture.

JOHN TAYLOR PEDEN, B.E. 1911, Pittsburgh, Pa.
Sales Department, Westinghouse Electric and Manufacturing Co.

JAMES HICKS PEIRCE, B.S. 1905, Warsaw, N. C.
With J. H. Peirce Manufacturing Co., Sash, Doors, and Blinds.

WILLIAM CASPER PENNINGTON, B.E. 1910, Thomasville, N. C.
Owner and Manager, Thomasville Hosiery Mills.

SAMUEL OSCAR PERKINS, B.S. 1906, Raleigh, N. C.
Soil Scientist, N. C. Department of Agriculture.

MILTON VANCE PERRY, B.E. 1914, Durants Neck, N. C.
With L. B. Perry & Co.

EUGENE GRAY PERSON, B.S. 1899, Macon, Ga.
Train Dispatcher, Central of Georgia Railway.

WILLIAM MONTGOMERY PERSON, B.E. 1900, Fairfield, Birm'h'm, Alabama.
With Semet-Solvay By-product Coke Plant, of Ensley, Ala.

ASA GRAY PHELPS, B.E. 1915, Newport News, Va.
Order Department, Newport News Shipbuilding and Dry Dock Co.

FREDERICK COLWELL PHELPS, B.E. 1904, Yuma, Ariz.
Second Lieutenant, 12th U. S. Infantry.

HENRY MARRIOTT PHILIPS, B.S. 1914, Battleboro, N. C.
Farmer.

ARTHUR JEFFERSON PHILLIPS, JR., B.E. 1914, Wilkinsburg, Pa.
Sales Department, Westinghouse Elec. and Mfg. Co.

WILLIAM RANSOME PHILLIPS, B.E. 1910, Raleigh, N. C.
E.E. 1913. Salesman, Western Electric Co.

ALEXANDER HOLLADAY PICKELL, B.E. 1912, Raleigh, N. C.
Engineer, Mosler Safe Co.

PETER PENICK PIERCE, B.E. 1909, St. Augustine, Fla.
Field Engineer, Valuation Department, Florida East Coast Railway.

GUY PINNER, B.E. 1907, Norfolk, Va.
C.E. 1912. Bridge Engineer, S. A. L. Ry.

JOHN GAY PINNER, B.S. 1915, Columbia, N. C., R. 1.
Farmer.

WINSLOW GERALD PITMAN,* B.E. 1907, Lumberton, N. C.
Superintendent City Water and Light Department.

PAUL NATHANIEL PITTENGER, B.E. 1911, Hartford, Conn.
Hartford Theological Seminary.

BENJAMIN FRANKLIN PITTMAN, B.E. 1908, Philadelphia, Pa.
Philadelphia Electric Co.

* Not heard from this year.

Name.	*Degree.*	*Address.*
LAWRENCE LYON PITTMAN,	B.E. 1908,	Whitakers, N. C.
Civil Engineer and Farmer.		
PAUL MILLER PITTS,	B.E. 1909,	Lockhart, Ala.
Machinist, Jackson Lumber Co.		
ANGELO BETTLENA PIVER,	B.E. 1906,	Phœnixville, Pa.
Structural Draftsman, Phœnix Bridge Co.		
WILLIAM CRAWFORD PIVER,	B.S. 1906,	New York, N. Y.
With Riches, Piver & Co., Chemical and Color Manufacturers, Hoboken, N. J.		
JAMES KEMP PLUMMER,	B.S. 1907,	Raleigh, N. C.
M.S. 1909. Ph.D. 1915, Cornell University. Soil Chemist, State Department of Agriculture.		
ROBERT AVERY PLYLER,	B.E. 1914,	Durmid, Va.
With United Cigarette Machine Co.		
PLEASANT H. POINDEXTER, JR.,	B.Agr. 1905,	Sharon, Okla.
Manager, C. E. Sharp Lumber Co.		
FREDERICK DAVIS POISSON,	B.S. 1914,	Danville, Va.
Liggett & Myers Tobacco Co.		
RUBLE ISAAC POOLE,	B.E. 1908,	West Raleigh, N. C.
Assistant Professor in Civil Engineering, N. C. College of Agriculture and Mechanic Arts.		
EDWARD GRIFFITH PORTER,	B.E. 1905,	Paraiso, C. Z.
Junior Engineer, Dredging Division, Panama Canal.		
JUNIUS EDWARD PORTER,	B.E. 1900,	Aurora, N. C.
General Manager and Treasurer, J. E. Porter & Co., Railroad Contractors.		
TRACY WINCHESTER PORTER,	B.S. 1914,	Farrell, Miss.
Superintendent Corley Farm.		
BRYANT MONROE POTTER,	B.E. 1912,	New Bern, N. C.
Civil Engineer.		
WILLIAM OWEN POTTER,	B.E. 1914,	Raleigh, N. C.
B.E. (Civil). Assistant Engineer, State Hospital.		
HARRY ALEXANDER POWELL,	B.E. 1908,	Fernandina, Fla.
Naval Stores Operator.		
JAMES ALEXANDER POWELL,	B.E. 1908,	East Pittsburgh, Pa.
M.E. 1913. Assistant Engineer, Condenser Department, Westinghouse Machine Co.		
JOEL POWERS,	B.E. 1903,	Goldsboro, N. C.
Draftsman, Dewey Brothers.		
THOMAS MILTON POYNER,	B.E. 1908,	Charleston, S. C.
Jefferson Construction Co.		
JAMES BRUCE PRICE,	B.E. 1910,	Bethlehem, Pa.
Electrical Engineer, Bethlehem Steel Co.		
JOHN MOIR PRICE,	B.E. 1909,	Chicago, Ill.
Sales Agent, Chicago Office, Bethlehem Steel Co.		

Name.	*Degree.*	*Address.*
HUGH WILLIAMS PRIMROSE,†	B.S. 1897, M.S. 1900.	Raleigh, N. C.
ABRAM HINMAN PRINCE,	B.S. 1895,	Orange, Tex.
Agent U. S. Department of Agriculture.		
CHARLES MARCELLUS PRITCHETT,	M.E. 1895,	Washington, D. C.
C.E. 1896. Superintendent of Construction, Supervising Architect's Office, U. S. Treasury Department.		
VICTOR VASHTI PRIVOTT,	B.E. 1895,	Suffolk, Va.
Merchant.		
FRANK WILSON PROCTER,	B.E. 1915,	Raleigh, N. C.
Graduate Student, N. C. College of Agriculture and Mechanic Arts.		
CARL CLAWSON PROFFITT,	B.S. 1915,	Newton, N. C.
Department of Rural Science, Catawba County Farm Life School.		
CHARLES LANDON PROFFITT,	B.S. 1915,	Lenoir, N. C.
County Farm Demonstration Agent.		
THOMAS HECTOR PURCELL,	B.E. 1913,	Hope Mills, N. C.
Bookkeeper, Hope Mills Manufacturing Co.		
HENRY AUBREY QUICKEL,	B.S. 1913,	Charlotte, N. C.
With Western Union Telegraph Co.		
JOSEPHUS PLUMMER QUINERLY,	B.S. 1911,	Auburn, Ala.
Agent in Dairying, U. S. Department of Agriculture.		
MILLARD REED QUINERLY,	B.S. 1914,	Grifton, N. C.
Farmer.		
JOHN OLAN RANKIN, JR.,	B.S. 1913,	Rocky Mount, N. C., R. 5.
Assistant Superintendent, Edgecombe Test Farm.		
WILLIAM WALTER RANKIN,	B.E. 1904,	Chapel Hill, N. C.
Instructor in Mathematics, University of North Carolina.		
JOHN DUNCAN RAY,	B.S. 1915,	Kansas City, Mo.
Student, Kansas City Veterinary College. Home Address, Raeford, N. C.		
RISDEN PATTERSON REECE,	B.E. 1904,	Winston-Salem, N. C.
Mechanical Engineer.		
JOHN BARTOW REES,	B.E. 1914,	Charlotte, N. C.
Engineer's Student, Southern Bell Telephone and Telegraph Co.		
ROBERT RICHARD REINHARDT,	B.S. 1909,	Lincolnton, N. C.
D.V.M., Kansas City Veterinary College. Veterinarian.		
WILLIAM BENEDICT REINHARDT,	B.E. 1902,	Dawson, Y. T., Canada.
Electrician, Dawson Electric Light and Power Co.		
ROGER FRANCIS RICHARDSON,	B.E. 1900,	Ensley, Ala.
Engineer, Semet-Solvay Co.		

† Deceased.

Name.	*Degree.*	*Address.*
WILLIAM RICHARDSON, JR.,	B.E. 1904,	Birmingham, Ala.
Assistant to Consulting Engineer, Coal Mining Department, Tennessee Coal, Iron and Railroad Co.		
EDWARD HAYS RICKS,	B.E. 1903,	Roanoke Rapids, N.C.
Cashier First National Bank.		
LOUIS NAPOLEON RIGGAN,	B.E. 1912,	Jacksonville, Fla.
Assistant, Engineer's Office, Seaboard Air Line Railway.		
ALFRED PRATTE RIGGS,	B.E. 1909,	Key West, Fla.
With Florida East Coast Railway.		
THURMAN LESTER ROBERSON,	B.E. 1914,	Newport News, Va.
Order Department, Newport News Shipbuilding and Dry Dock Co.		
DANIEL ERNEST ROBERTS,	B.S. 1914,	Red Springs, N. C.
Principal Robeson County Farm Life School.		
JOHN MORGAN ROBERTS,	B.S. 1914,	Louisville, Ga.
Farming.		
ARCHIE KNIGHT ROBERTSON,	B.S. 1912,	West Raleigh, N. C.
Assistant in Boys' Corn Club Work in North Carolina, U. S. and N. C. Departments of Agriculture.		
DURANT WAITE ROBERTSON,	B.E. 1906,	Washington, D. C.
Teller, District National Bank.		
JOSEPH HENRY ROBERTSON,	B.E. 1909,	Salisbury, N. C.
With North Carolina Public Service Co.		
JAY FREDERICK ROBINSON,	B.E. 1910,	Newport News, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co.		
GASTON WILDER ROGERS,	B.E. (Elec.) 1903,	Birmingham, Ala.
B.E. (Civil) 1905. Physician and Surgeon.		
ZEBBIE GEORGE ROGERS,†	B.E. 1894,	Roxboro, N. C.
JOHN WESLEY ROLLINSON,	B.E. 1911,	Elizabeth City, N. C.
Supt. of Electrical Dept., Elizabeth City Light and Power Co.		
WILLIAM EDWIN ROSE,	B.E. 1900,	Washington, D. C.
Mechanical Engineer. Member Washington Society Engineers and The American Society of Marine Draftsmen.		
CHARLES BURDETTE ROSS,	B.E. 1903,	Charlotte, N. C.
Secretary and Treasurer Model Steam Laundry Co.		
FLOYD DE ROSS,	B.E. 1900,	Lawton, Okla.
Owner Lawton Coca-Cola Bottling Co.		
GRAEME ROSS,	B.E. 1911,	Joplin, Mo.
Manager Joplin Office, Westinghouse Electric and Manufacturing Co.		
GEORGE ROMULUS ROSS,	B.S. 1911,	Jackson Springs, N. C.
Farm Manager for Roger A. Derby.		
JOE WILLIAM ROSS,	B.S. 1914,	Fort Mill, S. C.
Farmer.		

† Deceased.

Name.	*Degree.*	*Address.*
LANDON COATS ROSSER,	B.E. 1915,	Jonesboro, N. C.
Lumber Manufacturer.		
EMORY PELL ROUSE,	B.E. 1914,	Lagrange, N. C.
Bookkeeper, Rouse Banking Co.		
GARLAND THOMAS ROWLAND,	B.E. 1913,	Schenectady, N. Y.
With General Electric Co.		
CARL COLLINS SADLER,	B.E. 1910,	Badin-Whitney, N. C.
Civil Engineer, Aluminum Co. of America.		
JAMES OLIN SADLER,	B.E. 1909,	Norfolk, Va.
Resident Engineer, Seaboard Air Line Railway.		
WILLIS HUNTER SANDERS,	B.S. 1897,	Weldon, N. C.
Superintendent of Power, Roanoke River Development Co.		
JOHN HYER SAUNDERS,	B.E. 1894,	Kinston, N. C.
Locomotive Engineer, Atlantic Coast Line Railroad.		
IRA OBED SCHAUB,	B.S. 1900,	Springfield, Mo.
Superintendent Demonstration Work, Frisco Railway.		
JOHN FRANKLIN SCHENCK, JR.,	B.E. 1914,	Lawndale, N. C.
With Cleveland Mill and Power Co.		
LEON JACOB SCHWAB,	B.E. 1907,	Savannah, Ga.
Junior Engineer, U. S. Engineering Department.		
ROBERT WALTER SCOTT, JR.,	B.Agr. 1905,	Bolton, N. C.
Agricultural Expert, North Carolina Co.		
EARLE ALOYSIUS SEIDENSPINNER,*	B.S. 1910,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
DAVID WALTER SEIFERT,	B.E. 1913,	Weldon, N. C.
Manager Weldon Coca-Cola Co.		
CARL DEWITT SELLARS,	B.E. 1893,	Greensboro, N. C.
Sales Department, Cone Export and Commission Co.		
JOHN WILLIAM SEXTON,	B.E. 1910,	Portsmouth, Va.
Resident Engineer, Seaboard Air Line Railway.		
CHARLES EDGAR SEYMORE,†	B.S. 1893,	Raleigh, N. C.
WILLIAM THOMAS SHAW, JR.,	B.E. 1914,	Weldon, N. C.
With The Shaw Cotton Mill.		
JAMES MORGAN SHERMAN,	B.S. 1911,	State College, Pa.
M.S. 1912 and Ph.D. 1915, Univ. of Wis. Asst. Prof. of Bacteriology, Pennsylvania State College; Bacteriologist, Agricultural Experiment Station. Home Address, McLean, Va.		
FLEMING BATES SHERWOOD,	B.S. 1912,	Ithaca, N. Y.
M.S. 1915. Graduate Student and Assistant in Chemistry, Cornell University.		
FRANCIS WEBBER SHERWOOD,	B.S. 1909,	Ithaca, N. Y.
M.S. 1911. Graduate Student and Assistant in Chemistry, Cornell University.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
Robert Arnold Shope,	B.E. 1909,	Atlanta, Ga.
John Wade Shore,	B.S. 1900,	Boonville, N. C.
Cashier Commercial and Savings Bank.		
Ira Short,	B.E. 1911,	Wilkinsburg, Pa.
Engineer, Westinghouse Machine Co., of East Pittsburgh, Pa.		
John Houston Shuford,	B.S. 1903,	Charlotte, N. C.
Technical Representative and Salesman, Berlin Aniline Works.		
John Oscar Shuford,	B.E. 1907,	Lincolnton, N. C.
Superintendent Electric Plant, Town of Lincolnton.		
William Talmage Shull,	B.E. 1912,	Wenona, N. C.
Chief Engineer for Streduck & Hooper.		
Orin Morrow Sigmon,	B.E. 1911,	Hickory, N. C.
Treasurer Piedmont Wagon and Manufacturing Co.		
George Gray Simpson,	B.E. 1909,	Rockingham, N. C.
Assistant to Secretary and Treasurer, Great Falls Manufacturing Co.		
William Dudley Simpson,	B.E. 1913,	Petersburg, Va.
Civil Engineer.		
Frederick Erastus Sloan,	B.S. 1899,	Charlotte, N. C.
Robert Lee Sloan,	B.S. 1913,	Mt. Lebanon, La.
Agriculturist, Bienville Parish Agricultural School.		
William Neville Sloan,	B.E. 1909,	Abingdon, Va.
Examiner of Surveys, U. S. Government Forest Service.		
Andrew Thomas Smith,	B.S. 1899,	Newport News, Va.
Inspector, Newport News Shipbuilding and Dry Dock Co.		
Edgar English Smith,	B.E. 1908,	Seattle, Wash.
With U. S. Coast and Geodetic Survey.		
Edwin Harrison Smith,	B.E. 1910,	Weldon, N. C.
With Bank of Weldon.		
Edward Oscar Smith,	B.E. 1901,	Newport News, Va.
Chief of Order Department and Secretary of Employment Board, Newport News Shipbuilding and Dry Dock Co.		
Francis Clark Smith,	B.E. 1913,	Winter Haven, Fla.
Frank Steed Smith,	B.E. 1913,	Savannah, Ga.
Division Traffic Supervisor, Southern Bell Telephone and Telegraph Co.		
James Lawrence Smith, Jr.,	B.E. 1908,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
James McCree Smith,	B.S. 1912,	State Road, N. C.
Fruit Grower.		
Jonathan Rhodes Smith,	B.E. 1905,	Rankin, Pa.
Assistant Structural Engineer, McClintic Marshall Const. Co.		

Name.	*Degree.*	*Address.*
ORUS WILDER SMITH,	B.E. 1912,	Springfield, Ohio.
Assistant to Chief Engineer, Foos Gas Engine Co.		
WALTER HERBERT SMITH,	B.E. 1914,	Wilkinsburg, Pa.
Railway Engineering Dept., Westinghouse Electric and Mfg. Co.		
WHITEFOORD INGERSOLL SMITH,	B.E. 1915,	Asheville, N. C.
Apprentice, Asheville Cotton Mills.		
WALTER JOHNSTON SMITH, JR.,	B.S. 1915,	Charlotte, N. C.
United States Tire Co.		
WILLIAM TURNER SMITH,	B.E. 1900,	Duke, N. C., R. 1.
Civil Engineer, Farmer.		
THOMAS JEHU SMITHWICK,	B.S. 1897,	Mount Airy, N. C.
Consulting and Erecting Engineer.		
RUSSELL ELSTNER SNOWDEN,	B.E. 1902,	Snowden, N. C.
Senior Member, Snowden & Snowden, Civil and Consulting Highway Engineers.		
JOSEPH MCKAY SPEARS,	B.E. 1915,	Chicago, Ill.
Asst. on Eng. Corps, Valuation Dept., Chicago and Eastern Illinois R. R.		
CHARLIE AUGUSTINE SPEAS,	B.E. 1911,	Laurel, Miss.
With New Orleans, Mobile and Chicago Railroad.		
EDWARD PINKNEY SPEER,	B.E. 1912,	Waco, Tex.
Assistant Manager Meter Department, Texas Power and Light Co.		
JOHN FRANCIS SPEIGHT,†	B.E. 1910,	Whitakers, N. C.
COLIN GEORGE SPENCER,	B.S. 1913,	Mayworth, N. C.
Superintendent of May farm.		
HERBERT SPENCER,	B.S. 1915,	West Raleigh, N. C.
Instructor, Department Zoology and Entomology, N. C. College of Agriculture and Mechanic Arts.		
JOHN DAVIDSON SPINKS,	B.E. 1905,	Albemarle, N. C.
C.E. 1913. Civil Engineer.		
JESSE PAGE SPOON,	B.Agr. 1908,	Burlington, N. C.
M.S. 1909. D.V.S. 1911, Kansas City Veterinary College. Veterinarian.		
ST. JULIEN LACHICOTTE SPRINGS,	B.S. 1910,	Lake Waccamaw, N.C.
Farmer, and Vice-President and Sales Manager Alco Lime Company of Wilmington, N. C.		
ERVIN BLACKENEY STACK,	B.E. 1905,	Monroe, N. C.
Member of firm, J. E. Stack & Co.		
TALMAGE HOLT STAFFORD,	B.S. 1912,	Harmony, N. C.
Instructor in Agriculture, Iredell County Farm Life School.		
CHARLES BURT STAINBACK,	B.E. 1910,	East Pittsburgh, Pa.
With Sales Department, Westinghouse Electric and Manufacturing Co.		
EDWARD ROE STAMPS,	B.E. 1903,	Macon, Ga.
Superintendent, F. S. Royster Guano Co.		

† Deceased.

Name.	*Degree.*	*Address.*
HARRIS INGRAM STANBACK,	B.E. 1910,	Newark, N. J.
In Charge of Quality, General Electric Lamp Works.		
NUMA REID STANSEL,	B.S. 1898,	El Paso, Tex.
E.E. 1901. Local Manager Southwest General Electric Co.		
THOMAS BARNES STANSEL,	B.S. 1910,	Mascot, Tenn.
With American Zinc Company.		
CLARENCE ALEXANDER STEDMAN,	B.S. 1912,	City Point, Va.
Chemist, DuPont Powder Co.		
ALEXIS PRESTON STEELE,	B.S. 1899,	Statesville, N. C.
Mechanical Engineer, Firm of J. C. Steele & Sons.		
HUGH STUART STEELE,	B.E. 1909,	Miles City, Mont.
Drainage Engineer, Chicago, Milwaukee and St. Paul Railway.		
JOHN BROWN STEELE,	B.S. 1913,	Lexington, N. C.
Farm Demonstrator for Davidson County.		
LUCIUS ESEK STEERE, JR.,	B.E. 1911,	Detroit, Mich.
Electrical Draftsman, Detroit Edison Co.		
SAMUEL FATIO STEPHENS,	B.E. 1909,	Norfolk, Va.
NEEDHAM BRYAN STEVENS,	B.S. 1912,	Plymouth, N. C.
County Agent, U. S. Dept. of Agriculture.		
WILLIAM BEEVER STOVER,	B.E. 1913,	Wilkinsburg, Pa.
Sales Dept., Westinghouse Electric and Manufacturing Co.		
CHARLIE BERRYHILL STOWE,	B.S. 1913,	Charlotte, N. C., R. 4.
Farmer.		
GEORGE YATES STRADLEY,	B.E. 1903,	Roanoke, Va.
With Virginia Bridge and Iron Co.		
JOHN SNIPES STROUD,	B.E. 1908,	Stonewall, Miss.
Superintendent Stonewall Cotton Mills.		
WALTER STEPHEN STURGILL,	B.E. 1901,	Fort Sill, Okla.
First Lieutenant of Field Artillery, U. S. Army.		
WILLIAM CLARK STYRON,	B.E. 1910,	Newport News, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co. Home Address, Washington, N. C.		
TEISAKU SHUGISHITA,*	B.S. 1898,	Japan.
BEVERLY NATHANIEL SULLIVAN,	B.S. 1901,	Winston-Salem, N. C.
THOMAS BRYAN SUMMERLIN,	B.E. 1910,	Mount Olive, N. C.
With M. O. Summerlin, Vehicles, Machinery and Implements.		
HENRY NEWBOLD SUMNER,	B.E. 1909,	Fort Terry, N. Y.
Lieutenant Coast Artillery Corps, U. S. Army.		
LLOYD HURST SWINDELL,	B.E. 1911,	Raleigh, N. C.
Farmer.		
STANTON BANKS SYKES,	B.E. 1913,	Schenectady, N. Y.
Apprentice, Testing Dept. General Electric Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
VANCE SYKES,	B.E. 1907,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
GEORGE FREDERICK SYME,	B.S. 1898,	Raleigh, N. C.
C.E. 1907. Civil Engineer, State Highway Commission.		
WILLIAM ANDERSON SYME,†	B.S. 1899,	Raleigh, N. C.
M.S. 1903. Ph.D., Johns Hopkins University.		
FREDDIE JACKSON TALTON,	B.Agr. 1906,	Pikeville, N. C., R. 2.
Farmer.		
CLAUDE STRATON TATE,	B.E. 1909,	Littleton, N. C.
Manager for T. J. Miles, Receiver Tate Machinery and Supply Co.		
DANIEL MCGILVARY TATE,	B.S. 1915,	City Point, Va.
Foreman in Lumber Yard, Lans Lumber Co. Home Address, Norlina, N. C.		
ARTHUR WILLIS TAYLOR,	B.E. 1912,	Burlington, N. C.
Engineer with Piedmont Railway and Electric Co.		
CULVER MURAT TAYLOR,	B.E. 1912,	Syracuse, N. Y.
With Niagara, Lockport and Ontario Power Co.		
HERBERT LEE TAYLOR,	B.E. 1912,	Waterbury, Conn.
Industrial Engineer, Chase Metal Works.		
WALTER CLYBURN TAYLOR,	B.E. 1913,	Bridgeport, Conn.
With Remington Arms Company.		
ZEBULON WHITEHURST TAYLOR,†	B.E. 1914,	Tarboro, N. C.
ARTHUR LEE TEACHEY,	B.S. 1915,	Pleasant Garden, N.C.
Agriculturist, Pleasant Garden Farm Life School.		
JAMES CLARENCE TEMPLE,	B.S. 1904,	Experiment, Ga.
M.S. 1908. Bacteriologist, Georgia Experiment Station.		
MALVERN HILL TERRELL,	B.E. 1909,	Atlanta, Ga.
Electrical Engineer, U. S. Government.		
FRANK MARTIN THOMPSON,	B.E. 1910,	New York, N. Y.
With Lorillard Tobacco Co.		
GEORGE LOGAN THOMPSON,	B.E. 1912,	Goldsboro, N. C.
JOHN SAM THOMPSON,	B.S. 1912,	Woodville, N. C.
Farmer.		
THOMAS HAMPTON THOMPSON,	B.E. 1910,	Greensboro, N. C.
With Southern Railway.		
BUXTON WILLIAMS THORNE,†	B.E. 1893,	Holly Springs, Miss.
THOMAS WHITMELL THORNE,	B.E. 1911,	Atlanta, Ga.
Salesman, National Tube Co.		
DANIEL WOOD THORP, JR.,	B.E. 1914,	Charleston, S. C.
Civil Engineer, with Jefferson Construction Co.		
LUTHER RUSSELL TILLETT,*	B.E. 1907,	Zamboanga, P. I.
Civil Engineer.		

* Not heard from this year.
† Deceased.

Name. *Degree.* *Address.*

RICHARD HENRY TILLMAN, B.E. 1906, Baltimore, Md.
Industrial Engineer, Consolidated Gas, Electric Light and Power Co.

WILLIAM SIDNEY TOMLINSON, B.E. 1906, Columbia, S. C.
Civil Engineer, Shand Engineering Co.

JAMES EDWIN TOOMER, B.S. 1909, Mascot, Tenn.
Chief Chemist, American Zinc Company of Tennessee.

JAMES RICHARD TOWNSEND, B.E. 1914, Greensboro, N. C.
Assistant Engineer to E. W. Myers, Consulting Engineer.

JESSE ERNEST TREVATHAN, B.S. 1915, West Raleigh, N. C.
With N. C. Agricultural Experiment Station.

CHARLES EDWARD TROTTER,† B.S. 1903, Franklin, N. C.
M.D., Johns Hopkins University.

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